

Journal
OF THE
China Branch
OF THE
Royal Asiatic
Society.



NEW SERIES.

VOL. XXIV.

1889-90.

SHANGHAI, 1890.

Price \$5.00

*Journal of the China Branch of the
Royal Asiatic Society for the year ...*

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JOURNAL
OF THE
CHINA BRANCH
OF THE
ROYAL ASIATIC SOCIETY *of Brit. & Ireland*
FOR THE YEAR 1889-90.

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ESSAY ON MANCHU LITERATURE.

By P. G. VON MÖLLENDORFF.

Since the appearance of the "Elementa linguae tartarico-manchuricæ" in THÉVENOT'S *Relation de diverses voyages*, Vol. III (1696), a European literature of considerable dimensions has been published on Manchu. The missionaries of the 17th century, who spoke Manchu at Kienlung's court, transmitted original Manchu works and translations to Europe, and everything known of the Manchu language and literature up to the beginning of this century originated either directly or indirectly with them. KLAPROTH, and especially H. C. VON DER GABELENTZ, are alone in having undertaken new and independent researches.

Père AMIOT and his colleagues in their works reported that the language was infinitely easier to acquire than Chinese, that the principal works in Chinese literature were translated into Manchu, and that therefore a knowledge of Manchu opened an easy access to Chinese literature. LANGLEË,¹ whose knowledge of Manchu was limited, frequently repeated these remarks of the missionaries (*Alphabet mandchou*, 3rd edition, preface p. viii, p. 3, etc.); subsequently, KLAPROTH, in his *Mémoires relatives à l'Asie*, Vol. III, p. 7 *seq.*, published the *Lettres sur la littérature mandchou, traduites du Russe de M. A. L. LÉONTIEV*, in which he contradicted the missionaries and LANGLEË, without, however, being able to give anything positive himself.

¹ The editor of Amiot's Dictionary.

Nobody has as yet tried to give a description of the Manchu literature, and while undertaking the task myself, I feel conscious how defective this first essay must be.

The following notes will serve to indicate the sources from which I have drawn my information:—In the introduction to his translation of the *T'sing-wên k'i-mung* (Shanghai, 1855), A. WYLIE has compiled a list of 69 works, unfortunately without any reference whatever.² KLAPROTH's *Verzeichniss der chinesischen und mandschuischen Bücher*, etc. (Paris, 1822), describes the twelve Manchu works in the Berlin Library, to which Prof. SCHOTT, in his *Verzeichniss*, 1840, has added two others. A manuscript catalogue of the Library of the Imperial Russian Legation at Peking shows 62 works. Further, we find 61 Manchu works mentioned in the Catalogue of the Library of the Asiatic Department in St. Petersburg; others are given in the auction catalogues of the libraries of LANGLEY (1825), KLAPROTH (1839) and THONNELIER (1880). TRÜBNER's *Am. and Oriental Record* and the catalogues of Messrs. MAISONNEUVE and LECLERC, in Paris, contain the titles of some Manchu works, with prices. Bibliographical notes are found in G. VON DER GABELENTZ's "Anzeige," *Zeitschr. der D. Morg. Ges.* XVI, p. 540; in the *滿州名臣傳* (*Man-chou-ming-ch'ên-chuan*), Vol. III, fol. 21 *sqq.*, Vol. VIII, fol. 28 *sqq.*; in the *東華錄* (*Tung-hua-lu*), Vol. I, fol. 22, Vol. III, fol. 3; and in the prefaces of some of the Manchu works. Besides my own library, I have had occasion to consult several private collections in Peking, and during repeated visits to the capital have hunted through the bookstalls and visited the fair at the 隆福寺 (*Lung-fu-ssü*),³ where I inspected all the Manchu books I could find. In all, I have noted 249 works, which

² See also his letter in *Zeitschr. der D. Morg. Ges.*, XIX, p. 303.

³ See BASTIAN, *Die Völker des Ostl. Asiens*, Vol. VI, p. 81.

represent the literature in Manchu, classed in the following way:—

	No. of Works.
1.—Aids for learning the language, dialogues, etc.	29
2.—Dictionaries	17
3.—The canonical books	23
4.—Philosophy, ethics, essays, etc.	47
5.—Religion... ..	25
6.—History, geography	26
7.—Laws, edicts, treaties, regulations	53
8.—Military sciences	6
9.—Mathematics, medicine	6
10.—Novels, poetry, etc.	17
Total ...	249

Of these works—

The Library of the Imperial Russian Legation at Peking possesses	62
The St. Petersburg Library possesses	61
The Berlin Library possesses	14

Nothing is known of Manchu works in the public libraries of Paris and London, excepting occasional remarks in JULIEN'S works, and the price lists in TRÜBNER'S *Record* and the catalogues of MAISONNEUVE FRÈRES and CH. LECLERC in Paris. But few will be added to the above number. Some older work might be found, especially in Palace editions, of which little is known. New works are not to be expected. At present scarcely anyone speaks Manchu at Peking, and the language is learned only by those who intend to enter official service as interpreters. But even these just learn enough to be able to translate documents to be laid before the

emperor. In official phraseology these men are well versed, but rarely one of them takes any interest in other than official work. Within the Imperial family, a merely artificial knowledge of Manchu is kept up by introducing servants, and especially amahs, from Kirin into the palace.

The beginning of Manchu literature dates from 1599. In that year the Manchu chief Nurhaci (drinker), who from 1616-27 called himself emperor, under the title of reign of 天命 (T'ien-ming), M. *Abkai fulingga* (heavenly decree),⁴ gave orders to adapt the Mongol letters to the Manchu pronunciation. The officials Erdeni and Hokai carried out this imperial order, and the alphabet proposed by them was improved by Dahai.⁵ The latter then received instructions to translate⁶ into Manchu the 明會典 (*Ming-hui-tien*), the statutes of the Ming dynasty, the 素書 (*Su-shu*), and the 三略 (*San-liao*). Dahai finished these translations in 1632, under the second emperor, whose title of reign was 天聰 (T'ien-tsung), M. *Sure han* (heavenly intelligence, the intelligent emperor).⁷ Dahai died in the year 1633,⁸ and left unfinished translations of the 通鑑 (*T'ung-chien*), general history (printed 1665); 六韜 (*Liu-t'ao*), the six military rules; 孟子 (*Méng-tz'ü*), the philosopher Mencius (printed 1677); the 三國志 (*San-kuo-chih*), the records of the three Kingdoms (printed 1646); and the 大乘經 (*Ta-ch'êng-ching*), the (Buddhist) book of the great development. To his colleagues Erdeni and Hokai we find no translations attributed.

⁴ Canonised as 太祖高皇帝 (*T'ai-tsu-kao huang-ti*), M. *Taiden deryi hūwangdi* (great ancestor, high emperor).

⁵ *Ming-ch'ên-chuan*, Vol. VIII, fol. 28-30.

⁶ *Tung-hua-lu*, Vol. I, fol. 22; *Ming-ch'ên-chuan*, Vol. III, fol. 21.

⁷ Canonised as 太宗文皇帝 (*T'ai-tsung wen huang-ti*), M. *Taidzung genggingen hūwangdi* (the great founder, the serene emperor).

⁸ *Ming-ch'ên-chuan*, Vol. III, fol. 21.

In the year 1634 the emperor decreed the institution of examinations in Manchu.⁹ The Manchu dynasty in China begins in 1644 with the emperor Shun-chih, and with the settling of the Manchus commences their more intimate contact with the rich literature of China. Up to 1662, the year of Kanghi's accession to the throne, we find, besides the eight translations of Dahai already mentioned, the History of the Liao and the Kin (1644), of the Yuen (1646), the 大清律例 (*Ta-ch'ing lü-lü*), or Penal Laws (1644), the Instructions of Hung-wu (1646), the Instructions of T'ien-ming, the 三皇帝聖訓 (*San-huang-ti-shêng-hsün*), the Sage Instructions of the Three Emperors (1739), and several minor works; altogether, 18 publications.

The great Kanghi (1662-1723) took special care of his mother tongue, and ordered translations and dictionaries to be prepared. He himself, however, wrote much Chinese, to emulate the learned of China. In his reign were published the beautiful editions of the 古文淵鑑 (*Ku-wên yüan-chien*), a collection of standard essays; the 通鑑綱目 (*T'ung-chien kang-mu*), the history of China, by Ssü-ma Kuang; the 性理精義 (*Hsing-li-ching-i*), an abstract of the metaphysical writings of the Sung scholars; the canonical books, and the Manchu national dictionary, explained in Manchu. In all, 41 works were printed during his reign. But already under his successor, the energetic Yung-chêng (1723-36), it was seen that not only was the Manchu language not accepted by any Chinese, but the Manchus themselves were forgetting their language, and were gradually being merged into the Chinese population. The emperor in his edicts made it an obligation for all Bannermen to learn Manchu, in order to preserve the language; but in vain. Only 17 works appeared during his period.

⁹ *Tung-hua-lu*, Vol. III, fol. 3.

The able Kienlung (1736-96) continued the work of his predecessors, and himself took an active part in the publications called forth by him. The great Mirror of the Manchu language, the polyglot dictionaries, and the enormous Buddhistic polyglot (in Chinese, Manchu, Mongol and Thibetan) are the principal of the 69 works which appeared under this emperor. The remaining 80 works occupy the period from 1796 till now, and comprise all those in three languages (Chinese, Manchu, Mongol, 三合 (*San ho*), *M. Ilan hacin i kameibuha*).

Under the first three emperors, when Manchu was still spoken, only the Manchu text was published. Such editions cease under Kienlung, and give place to bilingual prints, 合璧 (*Ho pi*), 滿漢 (*Man han*), *M. Manju nikan hergen kameiha* or *Manju nikan hergen i kameihe suhe*.

All Manchu works are printed at Peking. Nearly all are translations of Chinese originals; the few works originally written in Manchu contain entirely Chinese conceptions.

After each work enumerated below I have added the library or place where, according to my knowledge, a copy exists. Berlin, means the Royal Library in Berlin; Paris, either the house of MAISONNEUVE or one of the great libraries; Peking, the Imperial Russian Legation; St. Petersburg, the library there; v.d.G., Prof. VON DER GABELENTZ, in Leipzig; v.M., my own library.

I.—Aids for Learning the Language, Dialogues, etc.

1.—清文啟蒙 (*Ch'ing-wên ch'i-mêng*), *M. Cingwen ki meng bithe*—Elements of Manchu. 4 vols., 1730, 8vo. Written by 舞格 (*Wu-ko*), edited by 程明遠 (*Ch'êng Ming-yüan*). The work (the only Manchu grammar, therefore the best; see KLAPROTH, *Verzeichn.*, p. 121) contains a Manchu-Chinese preface, and in Vol. I the syllabary, with rules for pronouncing and writing; in Vol. II, Manchu-Chinese dialogues; in Vol. III, all affixes (*de, be, i, ni*,

ger, go, ge, ningge, etc.), altogether 254 articles, with examples—the real grammar; in Vol. IV, a list of words similarly written, like aga and aha, menggun and munggun, and a list of synonyms, like *bithe* and *hergen*.

Vide RÉMUSAT, *Recherches sur les langues tartares*, Vol. I, p. 99; G. VON DER GABELENTZ, in *Zeitschr. der d. Morg. Ges.*, XVI, p. 539; A. WYLIE, Translation of the *T'sing Wan K'e Mung*, a Chinese grammar of the Manchu-Tartar language, with introductory notes on Manchu literature (Shanghai, 1855, 8vo; ii, lxxx, 310 pp.) Vol. II has been translated into Russian by A. VLADYKIN. G. HOFFMANN, *Grammatica Mancese Compendiata dall' Opera Cinese Zing wen ki mung*, 1883. 36 pp.

[Libraries:—Berlin, Peking, v.d.G., v.M., Paris.]

2.—三合便覽 (*San-ho-pien-lan*), M. *Ilan hacin i gisun kamci-buha tuwara de ja obuha bithe*—Handbook of the three languages, Manchu, Mongol and Chinese. 12 vols., imp. 8vo, 1780. Vol. I contains (a) a preface in three languages, (b) the Manchu syllabary, (c) a Mongol grammar, (d) a Manchu grammar; Vol. II-X, a collection of words in three languages; Vol. XI-XII, short sentences in three languages.

H. C. VON DER GABELENTZ, in the *Zeitschr. f. d. Kunde des Morgenl.* I, p. 255-286, III, p. 88-104, has translated into German the articles (c) and (d) of Vol. I.

[Libraries:—Paris, Peking, v.d.G., v.M.]

3.—蒙文晰義 (*Mung-wên-ch'i-i*), M. *Monggu hergen i jurgan be faksalaha bithe*—Compendium of Mongolian. 4 vols., imp. 8vo, 1848. Author, Saishangga (the praiser), with the assistance of others. Manchu words or short phrases in the order of the syllabary, with Chinese and Mongol translation underneath. Below these, and unconnected, Chinese words with Mongol translation.

[Library:—v.M.]

4.—清文虛字歌 (*Ch'ing-wên-hsü-tzû-ko*)—A Poem on the Manchu Particles. A much-used little book on the use of the affixes in verse. Not printed. 16mo. Without year or author's name.

[Library:—v.M.]

5.—*Tongki fuka akū hergen i bithe*—the Book on Letters without diacritical points (like the point to distinguish *t* and *d*, *k* and *g*, and like the ring on *h*). 3 vols.

LANGLÈS, *Alph. mandchou*, 3rd ed., p. 59, calls it, "livre des lettres qui n'ont ni point ni accent." WYLIE, Transl., p. xlix.

6.—欽定清漢對音字式 (*Ch'in-ting ch'ing-han tui-yin tzu-shih*)—Proposal for Transcribing Manchu and Chinese sounds. 1836. 8vo, 62 leaves.

Published in accordance with an imperial edict of 1772. Contains the Manchu syllabary, with Chinese transcription; transcription of Manchu words of two syllables into single Chinese characters; transcription of Manchu words of two syllables into two Chinese characters; list of geographical names in Manchu and Chinese; thus introducing a uniform system of transcription.

SCHOTT, *Verz.* p. 51, note.

[Libraries:—Berlin, v.M.]

7.—原音正考 (*Yuan-yin chêng-k'ao*)—Researches into original initials. 1743, 8vo. New edition, 1830, 16mo. Contains 1,923 Chinese characters, classed under 96 Manchu syllables, commencing with *k'*, *k* and *h*, as 圖 *t'uan* surd and *t's*, *ts* and *s*, as 尖 *chien* sonant.

[Library:—v.M.]

8.—音韻逢源 (*Yin-yün fêng-yüan*)—On Chinese sounds. With Manchu transcription. 1840. 8vo.

[Library:—v.M.]

9.—正字通 (*Chêng-tzu-t'ung*)—A Chinese dictionary. First edition, 1670. Contains the Manchu syllabary with Chinese pronunciation.

Vocabularies.

10.—清文典要 (*Ch'ing-wên-tien-yao*)—Important Manchu expressions noted. 4 vols., 1739, 8vo. New edition, 1878. Contains about 6,500 Chinese sentences, consisting of four characters each,

with Manchu translation, arranged, according to the first character of each sentence, under 180 classes.

Vide *Zeitschr. der d. morg. Ges.* XVI, p. 538.

[*Libraries*:—Paris, v.d.G., v.M.]

11.—**萬寶全書** (*Wan-pao-ch'uan-shu*)—Complete book of all preciousities. 7 vols., 1739, 8vo.

According to WYLIE, Translation, p. xlviii, the 7th vol. contains a Chinese-Manchu Vocabulary, but SCHOTT, *Verz.*, p. 82, where he mentions this work, says nothing of it, nor was it in a modern edition which I saw.

[*Library*:—Berlin.]

12.—**翻譯類篇** (*Fan-i-lei-p'ien*), M. *Fan i lei biyan bithe*—Translated miscellanies. 4 vols., 1749, 8vo. Author, 冠菊窗 (Kuan Ch'ü-ch'uang). Chinese sentences of two and four characters, classed under the headings heaven, seasons, geography, etc., with Manchu translation.

Vide WYLIE, Translation, p. xliii.

[*Library*:—v.M.]

13.—*Yargiyan kooli be tukiyme fe manju gisun i bithe*—The book of old Manchu speech to keep up good custom.

[*Library*:—Peking.]

14.—**滿漢六部成語** (*Man-han liu-pu ch'êng-yü*)—The business expressions in use in the Six Boards (of the Peking Government), in Manchu and Chinese. 4 vols., 1843, 8vo.

[*Libraries*:—Peking, v.M.]

15.—A Chinese-Manchu vocabulary. In manuscript, large 8vo.

[*Library*:—v. M.]

16.—**欽定金史語解** (*Ch'in-ting-chin-shih-yü-chieh*)—The native words occurring in the history of the Kin dynasty (1115–1234), explained with the help of Manchu. 4 vols., imp. 8vo; no year.

[*Library*:—v.M.]

Dialogues.

17.—*Tanggū meyen*. 100 chapters, 4 vols., in 12mo. Only Manchu, manuscript of the latter part of the 17th century. The same printed in 2 vols, large 8vo, no year, but about 1700, with occasional Chinese characters. New edition in 4 vols., 1810, 8vo, in Manchu and Chinese. 清文指要 (*Ch'ing-wén-chih-yao*), *M. Manju gisun i oyonggo jorin i bithe*—Important explanation of Manchu speech.

Vide WYLIE, Translation, p. xl. The Chinese text forms the basis of "The Hundred Lessons" in WADE's Colloquial Series (London, 1867; new edition, 1886).

[Libraries:—v.d.G., v.M.]

18.—*Dehi meyen*, 清話問答四十條 (*Ch'ing-hua-wén-ta sū-shih-t'iao*). 40 chapters, 57 leaves, 1759, 8vo. Author, Yunggui. Preface, Manchu; the dialogues, Manchu and Chinese. The same in manuscript, older than the printed edition, without Chinese.

[Libraries:—Berlin, v.d.G., v.M.]

19.—*Buyarame gisun*—Everyday talk. 2 vols., 12mo, no year; only Manchu, manuscript.

[Library:—v.M.]

20.—滿漢成語對待 (*Man-han ch'êng-yü tui-tai*), *M. Manju nikan fe gisun be jofoho acabuha bithe*—Manchu and Chinese sentences. 4 vols., 8vo, no year; Manchu preface.

[Library:—v.M.]

21.—Dialogues in Manchu, manuscript.

[Library:—St. Petersburg.]

22.—三合語錄 (*San-ho-yü-lu*)—Dialogues in Manchu, Mongol and Chinese. 1 cover, 1830.

[Library:—St. Petersburg.]

23.—滿漢初學清語 (*Man-han ch'ü-heio ch'ing-yü*)—Manchu sentences with Chinese translation. 8vo, manuscript.

[Library:—v.M.]

24.—初學啟蒙話條 (*Ch'u-hsiao-ch'i-mêng-hua-t'iao*)—Short sentences in Manchu for beginners, with Chinese translation. 8vo, manuscript.

[Library:—v.M.]

25-29.—Five manuscripts, 8vo, of one volume each, containing Manchu-Chinese dialogues.

[Library:—v.M.]

II.—Dictionaries.

30.—大清全書 (*Ta-ch'ing ch'üan-shu*)—A complete work of the Great Ch'ing (language). About 16 vols., 8vo, no year. Author, 沈啟亮 (*Ch'ên Ch'i-liang*). New edition, *Tai cing gurun i yooni bithe*. 14 vols, large 8vo, 1682. Chinese preface, general disposition of the work (凡例), table of contents; the dictionary arranged according to the Manchu syllabary. With Chinese translation.

[Library:—2nd ed. and vols. 4 and 5 of the 1st, v.M.]

31.—清文廣聚全書 (*Ching-wên-kuang-kui ch'üan-shu*)—A comprehensive collection of Manchu, complete; 4 vols, 8vo, 1703. Authors, 劉順 (*Lin-shun*) and 桑格 (*Sang-ko*). Chinese preface. Dictionary in four parts, divided into 44 chapters, on heaven, seasons, earth, mountains and rivers, palace, offices, etc. Chinese, with Manchu equivalents underneath.

[Library:—v.M.]

32.—欽定清語 (*Ch'in ting ch'ing yü*, *M. hesi toktobuha manju gisun*)—Manchu expressions compiled by Imperial order, 6 vols., 8vo, no year, Manuscript. Chinese with Manchu equivalents underneath. Arranged according to categories.

[Library:—v.M.]

33.—滿漢同文分類全書 (*Man han t'ung wên fên lei ch'üan shu*)—A dictionary in Manchu and Chinese, arranged according to categories. 8 vols, 8vo, 1706. Author: Sangge (he who understands). Preface (dated 1701) first Manchu, then Chinese. Manchu with Chinese translation underneath.

[Library:—v.M.]

34.—*Manju monggu gisun i buleku bihe*—Mirror of the Manchn and Mongol language, 21 vols, large 8vo, 1708. Manchn with Mongol translation.

[Libraries:—Peking, Paris, Trübner.]

35.—*御製滿文鑑* (*Yü chih man wén chien*), *M. han i araha manju gisun i buleku bihe*—Mirror of Manchn. Composed by order of Kanghi by a number of lettrés. Manchn words with Chinese translation. 1708.

[Library:—Peking.]

36.—*御製增訂清文鑑* (*Yü chih tseng ting ch'ing wén chien*), *M. han i araha nonggime toktobuha manju gisun i buleku bihe*. 48 vols., large 8vo, 1771. Improved edition of the preceding work. Each Manchn word with Chinese translation and Chinese transcription, the Chinese translation with transcription in Manchn, then follows an explanation of the meaning of the word in Manchn. Vol. I, preface of the Emperor Kienlung; Vol. II, preface of the Emperor Kanghi; Vol. III, the Manchn syllabary. 1st division, 32 vols., in 36 chapters with 292 subdivisions according to categories (heaven, time, earth, etc.). 2nd division, 8 vols, index of all Manchn words alphabetically with reference to the subdivisions. 3rd division, 5 vols, new-made words with index.

Vide Kienlung's preface in *LANGLÈS'* *Alphabet Mandchou*; Klaproth, *Verz.* p. 61. The latter author reprinted (p. 97-105 and p. 107-117) the list of the subdivisions. Descriptive catalogue of the Chinese and Manchu books in the India Office, by Rev. J. SUMMERS, 1872, p. 9. Extracts by C. DE HARLEZ in *Zeitschr. d. D.M. Ges.* 38 (1884) p. 634-41.

[Libraries:—Peking, Paris, Berlin, London, v.d.G., Trübner, v.M.]

37.—*Han i araha manju gisun i buleku bihe*—16 vols, large 8vo, 1709. All in Manchn, without Chinese. Preface and table of contents 1 vol., 20 divisions 10 vols, tables 1 vol., supplement 4 vols.

[Libraries:—Paris, Trübner, v.M.]

38.—音漢清文鑑 (*Yin han ch'ing wên chien*), in Berlin also with Manchu title (KLAPROTH, *Verz.* p. 118): *nikan hergen i ubaliyambuha manju gisun i buleku bithe*—A new edition of the dictionary No. 35, with Chinese explanatory remarks added. Compiler, Mingdo.

[Libraries:—Berlin, Trübner, v.M.]

39.—清文彙書 (*Ch'ing wên hui shu*), *M. manju isabuha bithe*—A Manchu-Chinese dictionary, alphabetically arranged in 12 chapters according to the syllabary; 12 vols., 8vo, 1751, also with new title-leaf dated 1807 and 1815. This formed the foundation of AMIOT's *Dictionnaire Tartare-Mandchou-Français*; Paris, 1789–90. 3 vols., 4to.

[Libraries:—Paris, Peking, v.d.G., Trübner, v.M.]

40.—清文補彙 *Ch'ing wên pu hui*, *M. manju gisun be niyeceme bithe*. Supplement to No. 39, in 8 chapters; 8 vols., 8vo, 1786. New edition: *manju gisun be niyeceme isabuha bithe*, 1802.

[Libraries:—Paris, Peking, v.d.G., Trübner, v.M.]

41.—*Manju nikan isabure bithe*.

[Library:—v.d.G.]

42.—*Manju gisun i yongkiyame tokto buha bithe*. 1722. Vide ZAKHAROFF, Dictionary, p. xvi.

[Library:—Peking.]

43.—御製滿珠蒙古漢字三合切音清文鑑 (*Yü chih man-chu meng-ku han tsu san ho ch'ieh yin ch'ing wên chien*, *M. manju monggo nikan hergen i ilan hacin i mudan araha buleku bithe*—Mirror of the Manchu language with Mongol and Chinese translation and pronunciation; 24 vols., large 8vo. Preface in three languages, dated 1772, a Manchu-Chinese preface dated 1780 (taken from the great dictionary No. 36), the general disposition of the work (凡例), list of compilers. Table of contents as in dictionary No. 36. The words of the three languages stand in the same line, each with the pronunciation in the two others.

Vide THONNELIER'S catalogue, p. 532, No. 4015, where the commencement of an edition of this work by KLAPROTH is mentioned.

[Library:—Paris.]

44.—四體合璧文鑑 (*Ssü t'i ho pi wên chien*), M. duin hacin hergen i kamciha bithe—Manchu dictionary with Mongol, Tibetan and Chinese translation, the Chinese with Manchu transcription. Arranged in categories.

[Libraries:—St. Petersburg, Peking, Paris.]

45.—滿漢西番集要 (*Man han hsi fan chi yao*), about 1760. A dictionary of Buddhist terms in Sanscrit (in Tibetan characters), Tibetan, Mongol, Manchu and Chinese.

Vide AMIOT, *Mémoires*, xi, p. 516; RÉMUSAT, *Mél. As.*, I, pp. 153–84; II, p. 264.

[Library:—Paris.]

46.—清漢文海 (*Ch'ing han wên hai*)—Ocean of Manchu and Chinese; 20 vols., 8vo, 1821. Author, Kna-erh-chia-pa-ni-hun (perhaps *guwere gaba ni hun*—he with a clashing armour), native of Kirin; editor, his son 普恭 (*P'u-kung*). A Chinese dictionary with Manchu translation arranged according to five tones and 106 finals, extracted from the great 佩文韻府 (*P'ei wên yün fu*), (WYLIE, *Notes*, p. 11).

[Libraries:—Peking, v.M.]

III.—The Canonical Books.

47.—日講四書 (*Jih chiang ssü shu*), M. inenggidari gigang-naha sy s'u i jurgan be suhe bithe. 12 vols., 8vo, 1677 and 1683. The four books with Chuhi's commentary, Manchu and Chinese.

The transliterated Manchu text of the four books in VON DER GABELENTZ, *Sseschu, Schuking und Schiking in Mandsch. Ueber*. Leipzig, 1860, p. 1–149.

For translations see *Manual of Chinese Bibliography*.

[Libraries:—St. Petersburg, Peking, v.M.]

48.—**滿漢四書** (*Man han ssü shu*), *M. manju nikan hergen i sy s'u*. 6 vols., 8vo, 1691. The text of the four books in Manchu and Chinese. The same, new edition, 5 vols., 8vo, 1846.

[Libraries:—v.d.G., Trübner, v.M.]

49.—**御製精譯四書** (*Yü chih fan i ssü shu*), *M. han i araha ubaliyambuha duin bithe*. The text of the four books, Manchu and Chinese, a new translation ordered by the emperor Kienlung; 6 vols., 8vo, 1756.

[Libraries:—Paris, v.M.]

50.—**合璧四書** (*Ho pi ssü shu*). 6 vols., 8vo. The text of the four books, Manchu and Chinese.

[Library:—v.M.]

51.—**滿漢字合璧四書集註** (*Man han tsü ho pi ssü shu chi chu*). 13 vols., large 8vo, no year. The text of the four books, with commentary, in Manchu and Chinese.

[Libraries:—v.d.G., v.M.]

52.—**御製清文大學衍義** (*Yü chih ch'ing wên ta hsiao yen i*), *M. da hio i jurgan be badarambuha bithe*. 32 vols., about 1700. Amplification of the Great Learning (the second of the four books), vide WYLIE, *Notes*, p. 69.

Vide second preface fol. 2 of **三合吏治輯要**, where this work is quoted under the title: *han i araha manju gisun i amba tacin i jurgan be badarambuha bithe*, and said to have been published under Kanghi.

[Library:—St. Petersburg.]

53.—**日講易經** (*Jih Chiang i ching*, *M. inenggidari giyangnaha i jing ni jurgan be suke bithe*. 1683. The I-king.

[Libraries:—St. Petersburg, Peking.]

54.—**御製精譯易經** (*Yü chih fan i i ching*), *M. han i araha ubaliyambuha jijungge nomun*. 4 vols., 8vo, 1766. The I-king, Manchu and Chinese.

[Libraries:—Peking, Paris, Trübner, v.M.]

55.—滿漢合璧易經 (*Man han ho pi i king*), M. manju nikan jeo gurun i jijungge nomun. 4 vols., large 8vo, no year. The I-king, Manchu and Chinese.

[Library:—v.M.]

56.—日講書經 (*Jih Chiang shu ching*), M. inenggidari giyang-naha s'u jing ni jurgan be suhe bithe. 15 vols., 1681. The Shu-king, with commentary, Manchu and Chinese.

[Libraries:—St. Petersburg, Peking, v.d.G., v.M.]

57.—御製精譯書經 (*Yü chih fan i shu ching*), M. han i araha ubaliyambuha dasan i nomun. 6 vols., 8vo, 1760. The Shu-king, Manchu and Chinese, without commentary.

The transcribed text in VON DER GABELENTZ, pp. 151-220.

[Libraries:—Peking, v.d.G., Trübner.]

58.—清漢合璧書經 (*Ch'ing han ho pi shu ching*). The Shu-king, Manchu and Chinese, 4 vols., 8vo, no year.

[Library:—v.M.]

59.—日講詩經 (*Jih Chiang shih ching*), M. inenggidari giyang-naha s'i jing ni bithe. 2 covers, 1654. The Shi-king, Manchu and Chinese, with commentary.

[Libraries:—St. Petersburg, Peking.]

60.—御製精譯詩經 (*Yü chih fan i shih ching*), M. han i araha ubaliyambuha irgebu i nomun. 4 vols., 8vo, 1769. The Shi-king, Manchu and Chinese.

The transcribed text in VON DER GABELENTZ, pp. 221-304.

[Libraries:—v.d.G., Trübner, v.M.]

61.—清漢合璧詩經 (*Ch'ing han ho pi shih ching*). 4 vols., 8vo, no year. The Shi-king, Manchu and Chinese.

62.—滿漢經文成語 (*Man han chung wên ch'êng yü*), M. manju nikan ging bithe toktoho gisun. 1737. Selections from the Shu-king and Shi-king in Manchu and Chinese.

Vide KLAPROTH, *Verz.*, p. 141.

[Library:—Berlin.]

63.—御製繙譯禮記 (*Yü chih fan i li chi*), M. *han i araha ubaliyambuha dorolon i nomun*. 12 vols., 8vo, 1784. The Li-ki in Manchu and Chinese.

[Libraries:—v.d.G., v.M.]

64.—*Niengniyeri bolori i bithe*. Manuscript, the Ch'nn-ch'iu in Manchu. 48 vols. *Vide* WYLIE's translation, p. xxxviii; printed (?), *vide* TRUBNKA's Record I, p. 391.

65.—御製繙譯春秋 (*Yü chih fan i ch'un ch'iu*), M. *han i araha ubaliyambuha s'ajingga nomun*. 48 vols., 8vo, 1785. The Chun-chin, Manchu and Chinese.

[Library:—v.M.]

66.—孝經 (*Hsiao ching*), M. *siyoo jing ni bithe*—The Book of Filial Piety.

[Library:—St. Petersburg.]

67.—欽定孝經 (*Ch'in ting hsiao ching*), M. *han i araha hiyoos'ungga nomun*. 1727. The Book of Filial Piety, Manchu and Chinese.

Vide KLAPROTH, *Verz.*, p. 140.

[Library:—Berlin.]

68.—繙譯忠孝二經 (*Fan i chung hsiao êrh ching*), M. *ubaliyambuha tondo hiyoos'ungga juwe nomun i bithe*. 2 vols., 8vo, 1851. The Book of Loyalty (*see below* No. 87) and the Book of Filial Piety, Manchu and Chinese, translated by 孟保 (Mêng Pao).

[Library:—v.M.]

69.—Preface to 孝經 (*Hsiao ching*), by Emperor Hsüan-tsung (A.D. 713-56). Manuscript, Manchu. Another translation exists printed in *Ku-wên-yüan-chien*, chap. 29.

[Library:—v.M.]

IV.—*Philosophy, Ethics, Essays, etc.*

70.—**朱子節要** (*Chu tzū chieh yao*). 5 vols., 8vo, 1676. Extract from the philosophical writings of 周 Chou, 張 Chang and the two 程 Ch'êng with Chuhi's commentary (1130–1200), in Manchu and Chinese. The original is 近思錄 (*Chin-sse-lu*), which Chuhi together with Lū Tsu-ch'ien wrote in 1175, *vide* WYLIE, *Notes*, p. 68; LEGGE, *Classics*, I, p. 25; MEADOWS, *The Chinese*, ch. 18; DE HARLEZ, French translation of some extracts in *Journ. As.*, IX, (1887), pp. 39–71; MATERS, *Reader*, pp. 25, 146.

[*Libraries*:—Paris, Berlin, v.M.]

71.—**清文古文淵鑑** (*Ch'ing wên ku wên yüan chien*), M. *han i araha gu wên yuwan giyan bithe*. 48 stout vols., large 8vo, 1686. A standard collection of model writings, in Manchu only. The Chinese original was published at the same time by order of Kanghi in 40 vols., Translator, Ming-kung. Contains extracts from the Ch'un-ch'iu, 戰國策 (*Chan kuo tsé*), and from the chief writers from the Han to the Sung (1278).

Vide WYLIE, *Notes*, p. 194.

[*Libraries*:—Peking, Paris, v.M.]

72.—**繙譯古文** (*Fan i ku wên*), M. *ubaliyambuka julgei s'u fiyelen*. 16 vols., 8vo, 1851. Another collection like the foregoing, chiefly from historical works, in Manchu and Chinese. Translator, Mêng Pao.

[*Library*:—v.M.]

73.—**小學** (*Hsiao hsiao*), M. *siyoo hiyo*. 8 vols. Chuhi's "Little Learning." Written in 1176.

Vide KLAPROTH, *Verz.*, p. 140; WYLIE, *Notes*, p. 68.

[*Library*:—v.d.G.]

74.—**Han i araha ajige tacikū bithe**. 4 vols., 8vo, 1727. The same as foregoing, only Manchu.

[*Libraries*:—Berlin, Peking, v.M.]

75.—滿漢合璧小學 (*Man han ho pi hsiao hsiao*), M. *manju nikan hergen kamcime araha ajige tacikū bithe*. 8 vols., 8vo, 1727. The "Little Learning" with commentary, Manchu and Chinese.

[Library:—Paris.]

76.—*Tondo unenggi fan gung ni wen ji bithe*. 8vo, 1708. (忠貞范公文集 *Chung chên fan kung wên chi*). 8vo, 1708. Manchu translation of 19 memorials to the throne by 范承謨 (Fan Ch'êng-mo), who died 1679.

Vide SCHOTT, *Verz.*, pp. 96, 97; also *China Review*, IX, p. 97.

[Libraries:—Berlin, Peking, v.M.]

77.—薛文清公先生要語 (*Hsüeh wên ch'ing kung hsien shêng yao yü*), M. *siowei wen cing gung siyan s'eng ni oyonggo gisun i bithe*. 4 vols., 8vo, 1714. Manchu and Chinese. First preface by 徐枋 (Hsü Shih), 1561; 2nd preface by 胡松 (Hu Sung), 1564; 3rd preface by 谷中虛 (Ku Chung-hsü), 1564. The work, divided into two books (內篇 *Nei pien*, 外篇 *Wai pien*), contains philosophical extracts from the 讀書錄 (*Tu shu lu*), of the Ming dynasty. Translator, Fudari, Captain in the Imperial Life Guards.

[Libraries:—St. Petersburg, v.M.]

78.—三字經 (*San tsü ching*). 2 vols., 8vo, 17th century. The Three Character Classic, with commentary, Manchu and Chinese. Author 王應麟 (伯厚) Wang Ying-lin (Po-hou), 1223-1296.

[Library:—v.M., (2nd vol.).]

79.—滿漢合璧三字經 (*Man han ho pi san tsü ching*), M. *manju nikan hergen i kamcime suhe san day ging bithe*. 2 vols., 8vo, 1795. The Three Character Classic with commentary, Manchu and Chinese.

Vide KLAPROTH, *Verz.*, p. 146; VON DER GABELENTZ, *Zeitschr. der d. morg. Ges.*, XVI, p. 541.

[Libraries:—Berlin, Paris, v.d.G., v.M.]

80.—滿蒙合璧三字經註解 (*Man méng ho pi san tzu ching chu chieh*), M. *manju monggo hergen i kamcime suhe san dey ging ni bithe*. 4 vols., large 8vo, 1833. The Three Character Classic with prefaces and commentary in Manchu, Mongol and Chinese. Translators: Sung-yan, Fngiyün and Inggiyün, revised by Urgajab and Fukiyan.

[Libraries :—Peking, Paris, v.M.]

81.—*Han i banjibuha sing li jing i bithe*. 8 vols., 8vo, no year. In Manchu alone. Translation of the 性理精義 (*Hsing li ching yi*), which is an extract of the great metaphysical work 性理大全 (*Hsing li ta ch'üan*), published in 70 books in 1415 (vide WYLIE, *Notes*, p. 69).

Translations of parts by VON DER GABELENTZ and GRUBE.

82.—欽定性理精義 (*Ch'in ting hsing li ching yi*), M. *han i araha sing li jing i bithe*. 12 vols., large 8vo, 1717. Only in Manchu. A revised translation of the foregoing.

[Libraries :—Peking, Paris, v.M.]

83.—滿漢合璧性理 (*Man han ho pi hsing li*), M. *manju nikan hergen kamciha sing li bithe*. 4 vols., 8vo, 1732. Contains, in Manchu and Chinese, the 太極圖說 (*Tai chi t'u shuo*), 通書 (*t'ung shu*) and 西銘 (*hsi ming*), (vide WYLIE, *Notes*, p. 69), i.e., only the first three books of the *Hsing li ta ch'üan*.

[Libraries :—v.d.G., v.M.]

84.—*Sing li jen jian bithe i hes'en*. 3 vols., 1753, 1763. Extract from 性理真詮 (*Hsing li chên chuan*). The latter is a philosophical work, published in 1753 by Hsün Teh-chao, in favour of Confucianism against other creeds.

Vide SCHOTT, *Verz.*, p. 44-46. Translation of Vol. I, by VON DER GABELENTZ, in *Zeitschr. fuer die Kunde des Morgenl.*, III, (1840), pp. 250-79.

[Library :—v.d.G.]

85.—忠經 (*Chung ching*), M. *tondo nomun*—The Classic of Loyalty. Author 馬融 (Ma Yung), 79-166. First embodied in the 小學 (*Hsiao hsio*)—Little Learning, (*vide* No. 73).

86.—合璧忠經 (*Ho pi chung ching*). 55 leaves, no year. The Classic of Loyalty, with commentary, Manchu and Chinese.

[Library :—v.M.]

87.—忠經 (*Chung ching*). New edition of the Classic of Loyalty in Manchu and Chinese, translated by Mêng Pao, together with 孝經 (*Hsiao ching*), *vide* No. 68.

88.—*Tondo be temgetulere bithe*—Loyalty as Model.

[Library :—v.d.G.]

89.—*Han i araha gucu hoki i leolen*. 8vo, 1724. Discourse on Friendship. Manchu only.

[Library :—v.M.]

90.—聖諭廣訓 (*Shêng yü kuang hsün*), M. *enduringge tacihiyan neileme badarambuha bithe*—Large 8vo, 1724. The Sacred Edict, consisting of 16 maxims written by the Emperor Kanghi, of which his son Yung-cheng, 1724, wrote an amplification. Manchu and Chinese.

Vide KLAPROTH, *Verz.*, p. 144. The Manchu translation published by Nocentini, Firenze, 1883; the 13th maxim in MEADOWS' translations, Canton, 1849; WYLIE, *Notes*, p. 70. C. DE HARLEZ in *Mém. de la Soc. des Études Jap., Chin., etc.*, 2^e Livr, 1885.

[Libraries :—Berlin, Paris.]

91.—三合聖諭廣訓 (*San ho shêng yü kuang hsün*), M. *ilan hacin i gisun kamcibuha enduringge tacihiyan be neileme badarambuha bithe*. 4 vols., large 8vo, 1873, with preface of 1724. The sacred edict in Manchu, Mongol and Chinese.

[Libraries :—v.d.G., v.M.]

92.—*Enduringge tacihyan be neileme badarambuha bithe*. 2 vols., 1725. The Sacred Edict in Manchu and Mongol.

Vide RĚMUSAT, *Notices et Extraits*, Vol. XIII, where the first three maxims are published in both languages.

[Library:—Paris].

93.—*Ci hiyūn*?

[Library:—v.d.G., (3rd vol.).]

94.—*聯珠集* (*Lien chu chi*). 61 leaves, 1728. "Collection of strung pearls," Ideas on ethics, geography, history, natural history, etc., in Manchu, Mongol and Chinese.

Vide VON DER GABELENTZ, *Zeitschr. der d. morg. Ges.* XVI, p. 540.

[Library:—v.d.G.]

95.—*Sheng dou gūsin hūwangdi i booī tacihyan i ten i gisun*. 2 vols., large 8vo, 1730. Only Manchu. Domestic Teachings of the Emperor Kanghi.

Translated in *Mémoires*, Vol. IX; *vide* WYLIE, Translation, p. xl.

[Libraries:—Peking, Paris.]

96.—*Jun jēu ba i erdemungge niyalma i kimcin*. 1 vol., manuscript.

[Library:—St. Petersburg.]

97.—*一學三貫清文鑑* (*Yi hsio san kuan ch'ing wēn chien*), *M. emu be tacifī ilan be hafu kiyara manju gisun i bulku bithe*. 4 vols., 8vo, 1746. By one study to attain three, viz., Chinese language, Manchu translation and instructive contents. Information on astronomy, geography, etc., in Manchu and Chinese.

[Libraries:—Peking, v.d.G., v.M.]

28.—*四本簡要* (*Ssu pēn chien yao*), *M. duin fulehe oyonggo s'os'ohon i bithe*. 4 vols., 8vo. First preface by Fu Ming-liang, 1652; second by Fu Ming-an, 1746; third by Fu Hsüen, (three generations). Rules of Wisdom. In four books (the last in verse),

discussing in 53 chapters the subjects of study, of being reverent and cautious, of moderation of purpose, of refinement and liberality, etc. In Manchu and Chinese.

[Library:—v.M.]

99.—**事箴言繙譯六** (*Fan i liu shih chên yén*), M. *ubaliyambuha ninggun baita targabun gisun bithe*. 4 vols., 8vo, 1816. Preface, Manchu and Chinese. Author **王鼎** (Wang Ting). New edition 1851, translated by Mêng Pao. Rules of Life on Six Subjects: (1) to take care of one's self, (2) to govern one's house, (3) to do one's official duties, (4) to live in the country, (5) to do one's business, (6) to inquire into men's character.

[Libraries:—As. Soc. Shanghai, v.M.]

100.—**繙譯童謠** (*Fan i t'ung yén*), M. *manju ubaliyambuha buya jusei muwa gisun i bithe*. 32 leaves, 8vo, 1845. Translated by Hiyán. Manchu and Chinese. Author of the Chinese original **秀楚翹** (Hsiu Ch'u-ch'iao). An elementary book for children.

[Library:—v.M.]

101.—**繙譯論** (*Fan i lun*). Manuscript in Manchu only. Essays.

[Library:—v.M.]

102.—**辦事總論** (*Pan shih tsung lun*). 1 cover. Discourse on the management of affairs. In Manchu and Chinese.

[Library:—St. Petersburg.]

103.—**繙譯試策法程** (*Fan i shih t'sé fa ch'êng*), M. *ubaliyambuha simnehe bodon i durun kemun i bithe*. 8 vols., 8vo, 1845. In Manchu and Chinese. Compiler and translator **穆齊賢** (Mucihyan Joifan). A collection of the best examination essays. Manuscript.

[Library:—v.M.]

104.—**繙譯考試題** (*Fan i k'ao shih t'i*), M. *simnehe timu bithe*. 2 vols. 8vo, no year; one vol. Chinese, one Manchu. Contains 38 examination essays.

[Library:—v.M.]

105.—*Ubaliyambume sinneke timu bithe*. 68 leaves. Examination essay.

Vide *Zeitschr. der d. morg. Ges.* XVI, pp. 542-43.

[Library:—v.d.G.]

106.—*Ubaliyambume sinneke timu bithe*. 8vo, 1853. Manchu with Chinese separately. Examination essay.

[Library:—v.d.G.]

107.—*繙譯課文條* (*Fan i k'ò wén t'iao*). Manuscript, only Manchu. Essays, corrected in red ink.

[Library:—v.M.]

108.—*滿漢名賢集* (*Man han ming hsien chi*), M. *manju nikan hergen kamcime araha ming hiyan ji bithe*. A collection of 174 maxims.

Vide WYLIE, Translation, p. xl. The Manchu text in KLAPROTH'S *Chrestomathy*, pp. 3-23.

109.—*三合名賢集* (*San ho ming hsien chi*), M. *ilan hacin gisun i kamcibuha gebungge saina isabuha bithe*. 4 vols., large 8vo, 1879. The same as the foregoing, in Manchu, Mongol and Chinese.

[Library:—v.M.]

110.—*百家姓* (*Pai chia hsing*), M. *be giya sing*. The Book of Family Names.

Vide WYLIE, Translation, p. xli.

111.—*千字文* (*Ch'ien tsü wén*). The Thousand Character Classic. In Chinese transcribed in Manchu.

Vide WYLIE, Translation, p. xlii.

112.—*滿漢合璧幼學須知* (*Man han ho pi yo hsio hsi chih*). 2 vols., 8vo, 1822. Preface dated 1771. What young students ought to know. An elementary book in Manchu and Chinese.

[Library:—v.M.]

113.—*Jao min wén ch'üan*. 1 cover, manuscript. Essays in prose and verse.

[Library:—St. Petersburg.]

114.—**臨雍御論** (*Lín yung yü lun*). Manchu and Chinese; Imperial essays written when visiting the College. Appears periodically.

Vide WYLIE, Translation, p. xlii.

115.—**Emu tanggū orin cakda (?) i gisun sarkiyān**. 1 cover, manuscript. Philosophy. In Manchu and Chinese.

[Library:—St. Petersburg.]

116.—**緬譯醒世要言** (*Fan i hsing shih yao yēn*), M. ubali-yambuha jalan de ulhibure oyonggo gisun i bithe. 8vo, 1876. An important Scripture to awaken the world. Translated by Mêng Pao.

[Library:—v.M.]

V.—Religion.

117.—**大乘經** (*Ta ch'êng ching*). A Buddhist sūtra, either the Mahāyānā sūtra or all the sūtras of the mahāyānā. Translated by Dahai in 1633, vide *Ming ch'ên chuan*, III, fol. 21.

118.—**感應篇** (*Kan ying pien*), M. acabums karulara bithe. 1673. The best known book of the Taoists, not, however, by **太上** T'ai shang (Lao-tzū), but of the time of the Sung dynasty. Innumerable editions in Chinese (WYLIE, *Notes*, p. 179).

Vide WYLIE, Translation, p. xxxix. The Chinese text in TURK-TINI's *Bai zan sao* and in the Chinese Chrestomathy published in Paris. The Manchu in KLAPROTH's Chrestomathy, pp. 25–36.

119.—**太上感應篇** (*T'ai shang kan ying pien*), M. tai s'ang ni acabume karulara bithe. 1759. The same as No. 118.

Vide WYLIE, Translation, p. xli; SCHOTT, *Verz.*, p. 85.

[Libraries:—Paris, Berlin, v.d.G., v.M.]

120.—Same title as foregoing number. The same work, illustrated by 400 short tales. In Manchu and Chinese.

Vide SCHOTT, *Verz.*, p. 47. One tale in KLAPROTH's *Chrestomathy*, pp. 48-62; the same in French in St. Julien, *Livre des Récompenses et des Peines*. Paris, 1835, pp. 18-27.

[Library:—Paris.]

121.—*心經* (*Hsin ching*), *M. niyaman i nomun*. In Manchu, Chinese, Tibetan (with Manchu transcription). 8vo.

Vide THONNELIER's Catalogue, p. 517, No. 3946. Is perhaps an abstract of the prajña pāramitā hridaya sūtra.

[Library:—Paris.]

122.—*四十二章經* (*Ssü shih ér h chang ching*). The sūtra of 42 sentences.

Vide *Journal As.*, XI, (1848), pp. 535-57 for French translation by GABET and HUO.

123.—*Fuchi i nomulaha (?) deli juwe fiyelen nomun*. The sūtra of 42 sentences. In Manchu, Mongol and Chinese. 1 cover, manuscript.

[Library:—St. Petersburg.]

124.—*Hian kie ch'ien fo hao*. The names of the 1,000 Buddhas, in five languages—Tibetan, Sanscrit, Manchu, Mongol and Chinese. 2 vols., 4to. The Kalpa of the sages (bhādrakalpa).

[Library:—Paris.]

125.—*Guwan s'eng di giyün i iletuleme acabuha bithei urgen be targabure bithe*. 1728. Kuan-shêng's discourse on the giving up of the desire of rewards. A Taoist tract.

Vide WYLIE, Translation, p. xl.

126.—*諸聖帝君訓誡世人之經* (*Chu shêng ti chün hsün chieh shih jên chih ching*), *M. geren enduringge di giyün i jalan i niyalma be tacihiyan targabure nomun*. One leaf, 8vo. A Taoist tract: Warning and Injunction to the men of this world.

Vide WYLIE, Translation, p. xxxix.

127.—*Geren enduringge di giyün i jalan de tutabuha boobai tacihiyan i nomun bithe*. 1 leaf, 8vo. A Taoist tract. Precious Teachings left to the world. In Manchu and Chinese.

[Library:—v.M.]

128.—**關聖帝君覺世寶訓經** (*Kuan shêng ti chün chiao shih pao hsün ching*), *M. enduringge di giyün kuwan mafai jalan de ulhibure boobai tacihiyan i nomun bithe*. 5 leaves, 8vo. A Taoist tract. Precious Teachings for the instruction of the world. In Manchu and Chinese.

[Library:—v.M.]

129.—**文昌帝君陰騭文** (*Wên ch'ang ti chün yin chih wên*), *M. wen cang di giyün enduri i butui erdemui bithe*. 4 leaves, 8vo. A Taoist tract. On secret virtues. In Manchu and Chinese.

[Library:—v.M.]

130.—**戒淫文** (*Chieh yin wên*), *M. hayadara be targabure bithe*. 6 leaves, 8vo. A Taoist tract. Warning against debauchery. In Manchu and Chinese.

[Library:—v.M.]

131.—**梓潼帝君感應陰騭文** (*Trü t'ung ti chün kan ying yin chih wên*), *M. day tung di giyün i butui sain de karulame acabume bithe*. A Taoist tract. On rewards and secret good actions.

Vide WYLIE, *Notes*, p. 180; Manchu in KLAPROTH'S *Chrestomathy*, pp. 37-47.

132.—**欽定清文祭祀條例** (*Ch'in ting ch'ing wên chi sai t'iao li*), *M. hesi toktobuha manjusai wecere metere kooli bithe*. 6 vols., large 8vo, 1765. In Manchu only. The Sacrificial Ritual of the Manchus; Vol. I-IV, describing the ceremonies and prayers during the sacrifices; Vol. V enumerates the different sacrificial vessels and utensils, of which Vol. VI gives 118 drawings.

Vide LANGLES, *Rituel des Tartars-Mantchoux*, Paris. 1804, 4to, 74 pp. and 10 plates; reprint from *Notices et Extraits*, VII, pp. 241-308. C. DE HARLEZ, *La religion nationale des tartares orientaux, mandchoux et mongols; avec le Rituel tartare, traduit*. Bruxelles, 1887. 8vo, 216 pp. and 8 plates.

[Libraries:—Peking, Paris, v.M.]

133.—*Wu pan jo king* (?). The Manchu version of a Buddhist sūtra. 16 vols., folio, 1820.

[Library:—B. Quaritch, London.]

134.—The *Kandjur* and *Tandjur*, i.e., the Buddhist *tripitaka*, the three collections (三藏 *San t'sang*):—sūtra (經 *Ching*), the sacred texts; *vinaya* (律 *Lü*), works on discipline; *śāstra* (論 *Lun*), philosophical treatises. The catalogue of the *Kandjur* (三藏聖教法寶標目錄, *San t'sang shêng chiao fa pao p'iao mu lu*, vide *Shên-i-tien*, chap. xcv, in the collection *Ku-chin t'u shu*), has been edited by SCHIEFNER, *der Index des Gandschur tibetanisch herausgegeben*. St. Petersburg, 1845, 4to, and Oxford, Clarendon Press, 1883. Vide JULIEN, *Mélanges de Géographie*, p. 94; also the works of S. BEAL, on Buddhism.

This great collection was printed by order of the Emperor Kienlung, in four languages—Chinese, Manchu, Tibetan and Mongol, each language in 348 vols. folio (*Kandjur* 108 vols., *Tandjur* 240 vols.), together 1,392 vols.

[Library:—St. Petersburg.]

135.—*萬物異原* (*Wan wu chén yuan*), *M. tumen jaka unenggi segiyen*. 8vo. The true origin of all things. Written in 1628 by the Missionary J. ALENI. Vide WYLLIE, *Notes*, p. 140, and Translation, p. xliv.

Catalogue of Sikawei (near Shanghai), p. 26, P. JULIO ALENI, S.J. Probatur imprimis Dei existentia, etc., dein demonstratur absurdam esse philosophorum sinensium sententiam qua asserunt omnium rerum principium esse Li 理 (rationem) et Yuen-ki 元氣 (primam materiam). 1 vol., 28 fol., 8vo, 50 sap. (cash).

[Library:—Paris.]

136.—*教要序論* (*Chiao yao hsü lun*). Written by P. FERDINAND VERBIEST, S.J. (南懷仁 *Nan Hwai-jen*), 1677. Prohibited by Imperial Edict of 1805, vide WYLLIE, Translation, p. xliii. Rudimentorum fidei ornata expositio. Explicantur in hoc libro

mysteria fidei, qualia sunt Dei existentia, S.S. Trinitas, immortalitas animæ, symbolum Apostolicum, Decalogum, Oratio dominica, etc. 1 vol., 75 fol., 8vo, 100 sap. (cash), *vide* Catal., p. 67.

137.—Brevis relatio eorum, quæ spectant ad declarationem Sinarum imperatoris Kam-hi circa cæli, Confucii et avorum cultu, datam a. 1700, accedunt primatum, doctissimorumque virorum et antiquissimæ traditionis testimonia opera P.P. soc. J. Pekini pro Evangelii propagatione laborantium. Large 8vo. Printed in the Imperial Palace, 1701. In Manchu, Chinese and Latin. 61 double leaves.

[Library:—Paris.]

138.—**聖年廣益** (*Shêng nien kuang yi*). By P. J. F. MOYRA DE MAILLAC, S.J., 1738. New edition 1815. Prohibited by Imperial Edict 1805. Annus sacer seu vitæ Sanctorum totius anni. Hoc opus vitas continet Sanctorum quorum festa singulis anni diebus, in Martyrologio adnotantur. Post quamlibet vitam habetur brevis meditatio tribus constans punctis et oratio cujusque Sancti propria. 4 vols., 12 libr., 16mo, 2,000 sap. (cash). Cat. p. 11.

139.—**天主實義** (*T'ien chu shih yi*), M. abkai ejen i unenggi jurgan. Vera de Deo doctrina, by P. MATH. RICCI, S.J. 4 vols., 1758. Auctor multis ac variis argumentis probat Dei existentiam, deum metempsychosin aliosque istiusmodi refutat errores, et tandem diversas de cœlibatu et abstinentia solvit quæstiones. Cat. p. 14.

[Library:—St. Petersburg.]

140.—*Musei ejen isus heristos i tutabuha ice hese*. 8 vols., 4to, St. Petersburg, 1835. The New Testament, translated under the direction of LIPOWZOW.

Vide SCHOTT, *Verz.*, p. iii.

[Libraries:—St. Petersburg, London, (Summers' Cat. p. 70), Paris, v.M.]

141.—The Old Testament, translated into Manchu. Manuscript. *Vide* WYLIE, Translation, p. xlvii.

[Libraries:—St. Petersburg, London.]

On Christian literature in Manchu, *vide* LANOLÈS, *Alphabet Mantchou*, pp. 71, 72; *Lettres édifi. et cur.* Nouv. édition, Paris, III, p. 330; MEADOWS, *Essay on the Manchu Language*, p. 11.

VI.—History.—Geography.

142.—大遼史 (*Ta liao shih*), M. *dai liyoo gurun i suduri*. 8 vols., 8vo, 1644. In Manchu only. Author of the Chinese original the Mongol 脫脫 (T'o T'o), translation commenced by Dahai and Erdeni, completed under direction of Hife by a number of scholars. History of the Liao dynasty, comprising 307 years up to 1125. Presented to Emperor Shunchih, 1644, who ordered 300 copies of the Liao history, 300 of the Kin, and 600 copies of the Ynen, to be printed.

Toto's histories are not authentic, as the Liao (the Khitans) left no documents.

Translated into German by VON DER GABELENTZ. St. Petersburg, 1878, 8vo, 225 pp. *Vide* KLAPROTH, *Verz.*, p. 90.

[Libraries:—Paris, v.d.G.]

143.—金史 (*Chin shih*), M. *aisin gurun i suduri*. 9 vols., 8vo, 1644. In Manchu only. History of the Kin (1115–1234). Author and translators are the same as those of No. 142. The Tungusic tribes, which under the name of 女直 (*Ju chih* or *Nü chih*), lived in Manchuria, founded 1116, under Aguda, an independent kingdom, which they called 金國 (*Chin kuo*), M. *aisin gurun* Golden Kingdom. This (1234) was conquered by the Mongols.

Vide KLAPROTH, *Verz.*, p. 33. The Kin words in the Chinese original are explained in No. 16.

Translated into French by C. DE HARLEZ, Lonvain, 1887.

[Libraries:—St. Petersburg, Berlin, Paris.]

144.—大元史 (*Ta yuan shih*), *M. dai yuwan gurun i suduri bithe*. 13 vols., 8vo, 1644. In Manchu only. Translators the same as those of No. 142. History of the Mongol dynasty (1206–1367), by 宋濂 (*Sung Lien*), (1310–81) and others.

Vide WYLIE, Notes, pp. 13 and 19.

[Library:—Peking.]

145.—綱鑑輯覽 (*Kang chien chi lan*), *M. hafu buleku bithe*. 1665. A compendious history of China, up to 1368, in Manchu. Left incompletely translated by Dahai (1633), completed and edited by order of the Emperor Kanghi in 1665. The Chinese original by 袁黃 (*Yuan Huang*), latter part of 16th century.

Vide KLAPROTH, Verz., p. 41.

[Library:—Berlin.]

146.—*Hafu buleku bithe ci oyonggo s'os'oho bithe*. 2 covers. Abridgment of No. 145.

[Library:—St. Petersburg.]

147.—通鑑綱目 (*T'ung chien kang mu*), *M. tung giyan gang mu i bithe*. 48 vols., large 8vo, 1691. In Manchu. A translation of the history of China, written by Ssü-ma Kuang and changed and abridged by Chuhi.

Vide WYLIE, Notes, p. 20; SCHOTT, *Verz.*, pp. 1–3.

[Libraries:—Peking, v.d.G., v.M.]

148.—*Wargi amargi babe necihiyeme toktobuha bodogon i bithe*. 1709. On the pacification of the West and the North.

[Library:—Peking.]

149.—*Junggar babe necihiyeme toktobuha bodogon i bithe sirame bithe*. 1761–65. On the Pacification of the Dzungars.

[Library:—Peking.]

150.—欽定西域同文志 (*Ch'in ting hai yü t'ung wên chih*), *M. wargi aiman i hergen be emu obuha ejetun bithe*. 8 vols., large 8vo, 1766. Description of the Western Countries, by order of the Emperor Kienlung. A geographical dictionary in Manchu, Mongol,

Chinese, Tibetan, Olot (Djunngar-Kalmuc) and Chagatai. In 24 chapters, enumerating the places, mountains, rivers, lakes and historical persons of Central and Western Asia, in all 3,111 articles.

Vide Preface to the Great Dictionary (No. 36) fol. 2; St. JULIEN, *Journal Asiatique*, X, (1840), p. 380. THONNELIER published part of it (Cat. p. 524, No. 3977).

[Library:—Paris.]

151.—異域錄 (*I yü lu*), M. *lakaha jecen de kal'uraha babe ejehé bithe*. 2 vols., 8vo, 1723, manuscript. Also printed, in Manchu. Notes on the countries on the far frontier, with a chart. Translated from the Chinese.

[Libraries:—Peking, v.M.]

152.—清字欽差大臣記在外夷論 (*Ch'ing tsü ch'ien ch'ai ta ch'ên ch'ü tsai wai i lun*). 2 vols., 8vo. Notes of an Ambassador on the Outer Barbarians. In Manchu. Manuscript.

[In a private collection in Peking.]

153.—西域聞見錄 (*Hsi yü wén chien lu*), M. *wargi jecen i bade bifi donjihi sabuha bithe*. 1777. What I heard and saw in the Western Countries. A description of Eastern Turkestan and part of Central Asia. By the Manchu 七十一 (*Ch'i shih i*).

Vide WYLIE, *Notes*, p. 52.

[Library:—v.d.G.]

154.—*Mukden ging hecen i cergi bai nirugan*. Names of Cities, etc., in the Province of Mukden. *Vide* WYLIE, *Translation*, p. xxxix.

155.—A description of the Chinese Embassy to the Turguts. *Vide* WYLIE, *Translation*, p. xxxix.

156.—*Kalkai dulimbi cugun gūsa*. The Banners of the Kalkas Tribe. *Vide* WYLIE, *Translation*, p. xxxix.

157.—八旗通誌 (*Pa ch'i t'ung chih*), M. *jakūn gūtai tung jy sucungga weilehe bithe*. About 200 vols., large 8vo, 1739, in Manchu only. The History of the Eight Banners.

Vide KLAPROTH, *Verz.*, p. 90; WYLIE, *Notes*, p. 57.

[Libraries:—Peking, v.M. (4 vols.).]

158.—**欽定八旗姓氏族譜** (*Ch'in ting pa ch'i hsing shih tsu pu*), *M. han i araha jakūn gūsai manjusai mukūn hala be uheri ejeri bithe*. About 45 vols., large 8vo, 1744. Genealogy of the Manchu families of the Eight Banners, in Manchu only. First preface by Kienlung, 1744; second by Yungcheng, 1735. In 80 chapters.

[Libraries:—Peking, v.M., chap. 1-18, in 10 vols.]

159.—**清字宗室王公表傳** (*Ch'ing tsū tsung shih wang kung piao chuan*), *M. uksun i wang gung sai gungge fas's'an be iletulere ulabun*. 6 vols., folio, 1765. In Manchu only. Biographies and Genealogies of Manchu Princes of the Imperial Clan.

For the Chinese original, *vide* WYLIE, *Notes*, p. 28.

[Library:—v.M.]

160.—**欽定滿洲源流考** (*Ch'in ting man chou yuan liu k'ao*). In 20 chapters, 1777. Antiquities and Geography of the Manchus.

For the Chinese original, *vide* WYLIE, *Notes*, p. 36.

161.—**欽定盛京通志** (*Ch'in ting shêng ching t'ung chih*). Description of the Province of Mukden, 1736. Author 王河 (Wang Ho), *vide* WYLIE, *Notes*, p. 36.

162.—**緬譯名臣傳** (*Fan i ming ch'ên chuan*). 8vo, manuscript. Biographies of famous men. In Manchu and Chinese.

[Library:—v.M.]

163.—**Cin lien s'an alin i ice ji bithe**. Description of the Chin-lien (?) mountains.

[Library:—Peking.]

164.—**Janla cucin babe necihiyeme toktobuha bodogon i bithe**. 12 covers, 1784. The pacification of the Kinchuan; *vide* WYLIE, *Notes*, p. 23.

[Libraries:—St. Petersburg, Peking.]

165.—**Hesei toktobuha tulergi monggo hoise aimani wang kung sai iletun ulabun**. 60 vols. Biographies of Mongol and Turkish Princes. Translated from the Chinese.

[Library:—St. Petersburg.]

166.—**皇朝開國方略** (*Huang ch'ao k'ai kuo fang lio*). 6 vols., 1786. History of the conquest of China by the Manchus, in chronological order, from Nurhachu to Shunehih (1584-1644). Preface by Kienlung. Compiled by a number of scholars.

167.—**讀史論畧** (*Tu shih lun lio*), M. hūlahu suduri i s'os'ohon he leolehe bihe. 2 vols., 8vo, 1849. On the study of History. In Manchu and Chinese. By 興德 (Hingde). Also 三合 (San ho) in Manchu, Mongol and Chinese.

[Library:—v.M.]

VII.—*Laws.—Edicts.—Treaties.—Regulations.*

168.—A tablet erected by the King of Corea to the Manchu Emperor Tsungteh, 1639, in Chinese, Manchu and Mongol; see W. R. CARLES in *J. of C. B. of R. A. S.*, XXIII (1888), pp. 1-8.

169.—*Monggo fufun i bihe*. 4 vols. Translated from the Chinese.

[Libraries:—St. Petersburg, Peking.]

170.—**明會典** (*Ming hui tien*). Description of the Chinese Government under the Ming dynasty (1368-1644). Published in Chinese in 1509 by 徐溥 (Hsü P'ü); in 1632 translated into Manchu by Dahai.

Vide WYLIE, *Notes*, p. 56; Ming ch'ên chuan, III, pp. 21-22.

171.—**大清律例** (*Ta ch'ing lü li*), M. dai cing gurun i fufun. 12 vols., folio, 1646; new edition, 1766. The penal code of China, in Manchu. First translated under Taitsung (1627-44), 1646, published. The Chinese text revised 1670, with additions 1723, revised 1740 and 1829, vide WYLIE, *Notes*, p. 57.

[Libraries:—Peking, v.M.]

172.—*Ming gurun i hung wu i tacihiyan*. 1646. "Homilies on themes relating to the Government." By the Ming Emperor Hung-wu (1368-99).

[Library:—Peking.]

173.—Diploma for P. ADAM SCHALL, 1651, in Manchu, *vide* KLAPROTH, *Verz.*, p. 59.

[Library:—Berlin.]

174.—*Han i araha ambasai mujilen be darabure bihe.* 1655. The Emperor's Address to the Officials on Morality; *vide* WYLIE, Translation, p. xxxviii.

175.—*Dasan de tuwangga oyonggo bihe.* 1 cover, 1655. On Government.

[Libraries:—St. Petersburg, Peking.]

176.—*Dorgi durun i jurgan be badarambuha bihe.* 1656. The ministry of the Imperial Household.

[Library:—Peking.]

177.—The treaty between Russia and China concluded in 1675 by Spafari. Manchu text in WASSILYEFF's Chrestomathy, pp. 82–120.

178.—*Jalan jalan i hafu buleku.* General mirror for all generations; *vide* WYLIE, Translation, p. xxxix. This is perhaps a translation of the 世緯 (Shih Wei), by 袁襄 (Yuan Chih), intended "to rectify abuses which had crept into the Government;" WYLIE, *Notes*, p. 70.

[Library:—St. Petersburg.]

179.—The treaty between Russia and China concluded in 1689, in Nipchu (Nerchinsk) by Golowin. Manchu text in WASSILYEFF's Chrestomathy, p. 166; English in MAYERS, *Treaties*, p. 96.

180.—欽定大清會典 (*Ch'in ting ta ch'ing hui tien*), M. *dai cing gurun i uheri kooli*. 1694. New edition, 1764. The Statutes of China. Published in Chinese the same year, revised 1727, again 1771; *vide* WYLIE, Translation, p. xlii, *Notes*, p. 57.

[Library:—Peking.]

181.—The treaty between Russia and China concluded in 1727, in Manchu, Russian and Latin by Sawa Wladislawich. Manchu text in KLAPROTH's Chrestomathy, pp. 101–120, and in WASSILYEFF's Chrestomathy, p. 171. English in MAYERS, *Treaties*, p. 96. *Vide* WYLIE, Translation, p. xli.

182.—上諭入旗 (*Shang yü pa ch'i*), *M. dergi hese jakün gūsade wasimbuhengge*. Manchu text 14 vols. Chinese text 12 vols., large 8vo, 1723-35. The edicts of Emperor Yungcheng addressed to the eight banners. *Vide* KLAPROTH, *Verz.*, p. 58; DE HARLEZ, *Manuel*, p. 4. *Zeitschr. d. d. morg. G.* XLI, (1887), pp. 311-18. *Mém. de la Soc. des Et. Jap.* 2^e Livr, 1885.

[*Libraries*:—Berlin (5 vols.), Peking, Paris, v.d.G., v.M.]

183.—諭行旗務奏議 (*Yü hsing ch'i wu tsou i*), *M. hesei yabubuha hacilame wesimbuhe gūsai baita*. Manchu text 13 vols., Chinese text 4 vols., large 8vo. Reports of the Eight Banners to the Emperor Yungcheng, on military and other matters.

[*Libraries*:—Paris, v.M.]

184.—上諭旗務議覆 (*Shang yü ch'i wu i fu*), *M. dergi hesei wasimbuhe gūsai baita be dahume gisurefi wesimbuhengge*. Manchu text 13 vols., Chinese text 11 vols., large 8vo. Rescripts of the Emperor Yungcheng in answer to the reports of the Eight Banners.

[*Libraries*:—St. Petersburg, Paris, v.M.]

185-187.—Three scrolls in Manchu, being patents of nobility given to Manchus. Time of Emperor Kienlung.

[*Library*:—v.M.]

188.—太祖高皇帝聖訓 (*Tai tsu kao huang ti shéng hsün*), *M. dai deu dergi hūwangdi i enduringge tacihiyan*. The homilies of Nurhachu (1584-1616), who from 1616-27 reigned under the title of 天命 (*T'ien ming*).

[*Library*:—Peking.]

189.—三皇帝聖訓 (*San huang ti shéng hsün*). 1739. The homilies of the three Emperors Shnchih, Kanghi and Yungcheng.

[*Library*:—Peking.]

190.—聖祖仁皇帝聖訓 (*Shéng tsu jén huang ti shéng hsün*), *M. s'engdsu gosin hūwangdi i enduringge tacihiyan*. 1741. Homilies of the Emperor Kanghi, (1662-1723).

[*Library*:—Peking.]

191.—*Jakūn gūsai kooli hacin*. 1 cover, 1742. The regulations for the Eight Banners.

[Library:—St. Petersburg.]

192.—*Da se i jurgan be badarambuha bithe*. The Board directing the affairs of the Tartars (?) at Peking.

[Library:—Peking.]

193.—*Ukanju be kadalamé jafara kooli*. 2 vols., 8vo, 1743. Regulations for the capture of deserters. In Manchu only.

[Libraries:—Peking, v.M.]

194.—*Uheri kooli i kooli hacin i bithe*. 1747. General regulations.

[Library:—Peking.]

195.—*Dai dsu han i yargiyan kooli bithe*. Nurhachu's customs. Quoted by AMIOT, *Éloge de la ville de Moukden*, p. 21, Note a.

196.—The treaty between Russia and China concluded in 1768, by Kropotow. Manchu text in WASSILYEFF's *Chrestomathy*, p. 190. English in MAYERS, *Treaties*, p. 96.

197.—清文五朝聖訓 (*Ch'ing wén wu ch'ao shéng hsün*). 10 covers, edited by Kienlung. The homilies of the five Emperors, Nurhachu, Taitsung, Shunchih, Kanghi and Yungcheng.

[Library:—St. Petersburg.]

198.—時憲書 (*Shih hsien shu*), *M. dai cing gurun i (abkai wehiyehé i dehi jakūci aniya i) erin fōrgon ton i bithe*. Folio, 1783. Published every year. Calendar.

[Libraries:—Paris, v.d.G., v.M., (1870 and 1871).]

199.—欽定吏部則例 (*Ch'in ting li pu tsé li*), *M. hesei toktobuha hafan i jurgan i weile arara kooli*. The records of the Board of Civil Office.

200.—欽定戶部則例 (*Ch'in ting hu pu tsé li*), *M. hesei toktobuha boigon yamun i weile arara kooli*. The records of the Board of Revenue.

201.—欽定禮部則例 (*Ch'in ting li pu tsé li*), M. *hesei toktobuha dorolon yamun i weile arara kooli*. The records of the Board of Ceremonies.

202.—欽定兵部則例 (*Ch'in ting ping pu tsé li*), M. *hesei toktobuha cooha i jurgan i weile arara kooli*. The records of the Board of War.

203.—欽定刑部則例 (*Ch'in ting hsing pu tsé li*), M. *hesei toktobuha beidere jurgan i weile arara kooli*. The records of the Board of Justice.

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This work, the *San kuo chih*, (No. 232), the *Shui hu chuan*, (No. 243), and the *Hsi yo chi* (西遊記) are called 四大奇書 (*Seū ta chi shu*), the four Wonderful Books. See WYLIE, *Notes*, p. 162.

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ABSTRACT OF INFORMATION
ON
CURRENCY AND MEASURES IN CHINA.

THIS Abstract has been compiled by Mr. H. B. MORSE from the replies received in answer to the Society's Circular issued in January 1889. The Council observe that the information is in some cases partial or defective, and that no replies have been received from many of the recipients of the Circular. It is therefore hoped that this publication may not be definitive, but that those who are able to supplement what is here set forth will communicate with the Honorary Secretary, the Council's desire being to publish at some future date a second edition of this paper.

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INTRODUCTION.

ALL nations have passed through the stage of chaos in their currency and measures. In western countries modern legislation has done much to reduce irregularity to order, though even there the old special units still linger on in common usage. In China some spasmodic efforts have been made from time to time to secure uniformity, but they have never gained much support, and, as will be seen from the following tables, chaos reigns supreme through the whole of the Empire. In many of the following contributions reference is made to the difficulty of finding any standard, even local.

An apology is due to the various contributors to this inquiry for not printing their papers as received; it is hoped, however, that they will recognise the utility of presenting the information in summarised tables, rather than giving detached information under all heads for each place. Where any contributor has given special information, it has been appended in the shape of notes under the proper head.

I have not attempted to prepare any general summaries. The reason for this will be obvious, when, on referring to the tables, it is remarked that many provinces are unrepresented, many others only covered at a few points, and two only (Kansu and Kiangsu, the latter fairly completely) are adequately reported on. The apathy of the mercantile residents in China on this subject, which so closely affects their interests, is remarkable, not one paper having been

received from any member of that influential body; and were it not for the efforts on their behalf made by the missionaries, Catholic and Protestant, this inquiry would have had no result.

An earnest appeal is made to all residents in China, whether members of the Society or not, to contribute further information on this important subject. There are three points to be kept in view:—

- 1°.—To check and (if wrong) rectify the statements made in the tables now submitted;
- 2°.—To send full information on the lines of this paper regarding places not now reported on;
- 3°.—To thus collect the material for an intelligent summary of the Currency and Measures of China by some competent hand.

The paper now presented is only preliminary, and it is hoped that the Society may soon be enabled to publish tables covering every part of China.

H. B. MORSE.

PAKHOI, 11th January 1890.



CIRCULAR ON CURRENCY AND MEASURES IN CHINA.

CHINA BRANCH OF THE ROYAL ASIATIC SOCIETY,
Shanghai, January 1889.

The Council of the China Branch of the Royal Asiatic Society are desirous of collecting information regarding the currency and measures in use in all parts of China, and request the favour of a short paper from you embodying information on the points given below. The papers when received will be summarised; and the summaries, together with the papers on which they are based, will be read at one of the open meetings of the Society, or printed in the Journal, at the discretion of the Council.

The points on which information is sought, are as follow:—

CURRENCY.

1.—*What are the kinds of Tael (兩) of Silver (the Haikwan or 關平 Tael excluded) known in your district? Please give names in full, thus 湘平化寶銀 (Hsiang-p'ing Hua-pao Yin), together with the colloquial name.*

2.—*What is the actual weight in grains ($437\frac{1}{2}$ grains equal to one ounce avoirdupois) of the Tael of each 平?*

3.—*What is the touch or fineness of each of the several kinds of Silver (pure silver being taken as 1,000 fine)?*

4.—*In each Tael of currency weighing (so many) grains, how many grains are there of pure silver (1,000 fine)?*

5.—*How many Taels of each of the currencies mentioned by you, are considered to be the equivalent locally of 100 K'u-p'ing Taels of pure silver (庫平足紋銀)?*

6.—*What relation do Mexican Dollars bear to the Tael commonly used locally? (100 Taels = ? Dollars).*

7.—*What kinds of Copper Cash are used in your district? What is a Tiao, and what its value?*

8.—*What relation do Copper Cash bear to the Mexican Dollar and [or] the local Tael?*

9.—*To what extent are Cash Notes (paper money) used locally? If used at all, please give some account of them.*

10.—*Are Bank Notes (or Bankers' cheques) for Silver used in your district otherwise than as cheques?*

WEIGHTS.

11.—*What weights of Catty (斤) are known in your district? Please give the equivalent in ounces avoirdupois or in grammes. Which is the one generally used?*

12.—*What weights of Picul (石 or 擔) are known in your district? Please give the equivalent in pounds avoirdupois or in kilos. Which is the one generally used?*

13.—*What variations are known from the table—*

16 Taels (兩) = 1 Catty (斤).

100 Catties (斤) = 1 Picul (石).

14.—*Does the Tael (兩) of Currency bear any exact relation to the Catty (斤) of commerce?*

CAPACITY.

15.—*What is the weight in lbs. or kilos of dry rice contained in the Peck (斗) known in your district? What is its capacity in English cubic inches or in cubic centimètres?*

LENGTH.

16.—*What lengths of Foot (尺) are known in your district? Please give equivalent in English standard inches (and decimals) or in decimals of a metre. What are their names or use?*

17.—What variations are known from the table—

10 Inches (寸) = 1 Foot (尺).

10 Feet (尺) = 1 Chang (丈).

18.—What is the length of a Pace (步)?

19.—What is the length of a Li (里)?

AREA.

20.—What is the area of a mow (畝) known in your district? Please give the equivalent in English square feet or in square metres.

21.—How is the area of land under one mow designated? Please give a table.

GENERAL.

22.—Please give any other information regarding these measures not covered by the above questions.



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- 28.—A. AGASSIZ, Esq. Notes on Lungchow (龍州廳), Kwangsi.
- 29.—W. B. RUSSELL, Esq. Notes on Newchwang (牛莊), Shêngking.
- 30.—REV. F. P. GILMAN. Notes on Overland Trip from Macao to Hainan.

NOTE BY DR. MACGOWAN
ON THE METROLOGY OF CHINA.

UNDER 斤, WILLIAMS, in remarking on its variations, ranging from three to twenty-one taels, the highest being the weight by which coal is sold in Honan, and the lowest being the catty of tea in Peking, justly ascribes the discrepancies to "an effort to equalise an apparent price at the expense "of the quantity given."

It cannot be said that the Imperial Government has failed in duty in the important function of providing standard weights and measures. More than two score centuries ago (2255 B.C.) that duty was discharged by the illustrious Shun, who rectified balances and co-ordinated weights and measures; successive dynasties have enacted statutory regulations to prevent metrological anarchy, but, as we see, they have been impotent in attempting their enforcement.

Metrological Policing.—No supervision is exercised by the Mandarinate in respect of weights and measures; statutable measures exist in the yamên, to which those in use by the people more or less correspond, the people in this as in commercial and municipal affairs being guided by rules of their own—consuetudinal law enforced by guilds generally or by extemporized organizations.

In the all-important matter of rice measuring, public vigilance suffices in most cities—as Wênchow, for example—to maintain uniformity. So well do the consumers of this

comestible know how many bowls of rice a given measure should contain, that the least fraud would be detected and the dealer lose custom—a matter that never happens.

In larger cities, however, for example as at Ningpo, rice-guilds exercise strict control over all rice-dealers, each one being obliged to be a member of the Association, among whom attempts at fraud are easily detected and the guilty are severely mulcted. Semi-monthly every dealer is required to send his measures to the guild to be tested. Care is taken to provide against the expansion and shrinkage which is consequent on the hygroscopic condition of the season, chunam being added or removed from the corners of the measure so as to adapt it to atmospheric vicissitudes; measures not taken for the public weal, but that dealers shall be able to obtain advantage over their fellow-tradesmen.

GOLD.

Rev. P. HOANG (1) states:—

Gold ingots are not in common use in trade, but only for hoarding. Hoarded gold is generally in one of two forms. One is in ingots shaped like a small boat, about 0.09 mètre [3.6 inches] long, 0.02 mètre [0.8 inch] wide, and weighing 360 grammes [5,555 grains=11.575 oz. troy]; this is called 金條. The other is in the form of gold-leaf, measuring about 0.2 mètre [8 inches] square, and weighing about 30 grammes [463 grains]; this gold-leaf is called 金葉子. The unit of value of gold is called 換; *e.g.*, if one ounce of gold is worth eighteen ounces of silver, it is quoted 十八銀換. The relative value of gold to silver was in the beginning of the Ming dynasty (1375) four times greater; under the Emperor Wan-li (1574) of the same dynasty, seven to eight times greater; at the end of the Ming dynasty (1635) ten times; under the Emperor Kang-hsi (1662) of the present dynasty, ten and more times; under the Emperor Kien-lung (1737) twenty times and more; in the middle of the reign of Tao-Kwang (1840) eighteen times; at the beginning of the reign of Hien-fung (1850) fourteen times; and at present (1882) generally eighteen times.

Rev. G. PARKER (7) states:—

A *liang* of gold is worth [in Kansu] $17\frac{1}{2}$ *liang* of silver. When the late Governor Tan was superseded, he required such a quantity of gold that the price rose to $21\frac{1}{2}$, or 4 *liang* above the normal price.

Dr. S. P. BARCHET (16) states:—

Gold is now seldom found in silver, since the natives have learned the wet process of extracting it.

PLACE.			Authority.	NAME OF TAEL.	WEIGHT OF TAEL.	
Province.	Prefecture.	Town.			15.4325=1 Grains.	Grammes.
...	...	...	...	Halkwan ... 關平	583.3	37.79
Shêng-king	Fêng-tien	Newchwang	29	Ying-tzû ... 營平	578.3	37.47
Chihli	Peking ...	...	...	Ching-p'ing ... 京平	...	...
			...	Erh-liang-p'ing 二兩平	...	...
	Tien-tsin	Fu ...	3	Hang-p'ing ... 行平	560.0	36.29
			3	Heiang-p'ing ... 湘平	559.0	36.23
Shantung	Chi-nan ...	Fu ...	5	Chi-p'ing ... 濟平	563.75	36.53
			5	K'u-p'ing ... 庫平	573.0	37.13
	Lín-ch'ing	Chou ...	4	...	...	...
	T'ang-chou	Chefoo ...	8	Ts'ao-p'ing ... 漕平	561.7	36.40
Shansi	Ln-an ...	Fu ...	20	Lu-p'ing ... 潞平	...	...
	T'ai-yuen	Yang-ch'ü ...	20	Yang-ch'ü ... 陽曲平	...	...
Shensi	Hei-an ...	King-yang	7	King-pu-p'ing 涇布平	558.15	36.17
			22	"	574.0	37.19
Kansu	Lan-chou	Fu ...	7	Lan-pu-p'ing ... 蘭布平	552.6	35.81
			6, 7	Lan-p'ing ... 蘭平	561.0	36.70
	Liang-chou	Fu ...	6	Liang-p'ing ... 涼平	554.3	35.91
	Kan-chou	Fu ...	6	Kan-p'ing ... 甘平	560.7	36.27
	Su-chou...	Fu ...	6	Su-p'ing ... 肅平	558.7	36.20
Honan	Nan-yang	Fu ...	9	Shih-p'ing ... 市平	557.5	36.12
			9	K'u-p'ing ... 庫平	564.7	36.59
Hupeh	I-chang ...	Fu ...	3	...	550.0	35.00
	Han-yang	Hankow ...	3	...	554.7	35.94
Kiangsi	Kiu-kiang	Fu ...	3	Ts'ao-p'ing ... 漕平	555.6	36.65
			3	Hang-p'ing ... 行平	555.5	35.82

SILVER IN TAEI.				EQUIVALENT VALUE		Local Tael 100 equal Silver Dollars	COFFEE CASH.			Notes.
NAME.	Fine- ness.	Fine Silver in each Tael.		Haitwan Tael 100 equal	Kuping Tia. 100 equal		De- nomi- n.	Actual number in Tiao	Tiao in one Tael.	
		Grains	Grammes							
足紋銀	1,000	583.3	37.79	...	98.384	152.778				
化寶	992	573.7	37.17	108.50	103.550	142.86	1	160	10	
...	...	...	...	...	...	...	} 10 = 20		10	
...	...	...	...	...	...	...		50	to 14	
化寶	992	554.4	35.92	} 105.00 106.05 }	103.515	142.860	1=2	500	3,150	Note 1.
"	992	554.5	35.93		105.20	103.500				
...	...	...	...	103.27	101.600	148.000	1=2	490	3,166	
...	...	...	...	...	...	...	1=2	490	3,100	
...	976	548.2	35.52	106.40	104.681	...	...	...	...	Note 2.
...	...	...	...	...	102.600					} Tia. 100 equal 8' hai
...	...	...	...	...	100.529	...	...	...	...	
...	970	...	...	...	101.456	...	...	...	...	Note 3.
...	?	...	...	...	...	...	...	...	...	Note 4.
...	970	...	...	...	102.470	...	} 1=2	485	3,180	Note 5.
...	? 985	...	...	...	104,500	...				
...	? 993	...	...	...	...	...				
...	...	...	...	...	101.317	...	1	980	1,600	
...	? 967	532.0	34.47	109.65	107.879					
...	967	536.4	34.76	108.75	106.998					
...	990	560.0	36.29	104.16	102.484					
...	988	559.0	36.22	104.36	102.674					
...	988	548.8	35.56	106.29	104.573					

PLACE.			Authority.	NAME OF TAIL.	WEIGHT OF TAIL.	
Province.	Prefecture.	Town.			15.4325—1 Grains.	Gram- mes.
Anhui	Wuhu ...	Fu ...	3	Ts'ao-p'ing ... 漕平	565.6	36.65
	Liu-an {	Chou ...	10	"	...	...
		Huo-shan ...	10	"	...	...
	Ying-chou	Huo-ch'iu ...	10	"	...	...
Kiangsu	Kiang-ning (Nan-king) {		17	K'u-p'ing ... 庫平	575.0	37.26
			17	Ts'ao-p'ing ... 漕平	563.7	36.62
			17	Hsiang-p'ing ... 湘平	552.4	35.79
			17	...	...	...
	Chin-kiang	Fu ...	3	Ts'ao-p'ing ... 漕平	565.6	36.65
			3	Hang-p'ing ... 行平	563.5	36.51
	Soochow ...	Fu ...	1	Ts'ao-p'ing ... 漕平	565.0	36.61
	Haü-chou	Sui-ning ...	11	"	...	...
	Sung-kiang	Shanghai {	1	"	565.3	36.63
			1	K'u-p'ing ... 庫平	575.9	37.32
			1	"	577.5	37.42
			3	Kuei-p'ing ... 規平	560.0	36.29
Chekiang	Ning-po ...	Fu ...	3, 15, 16	Kiang-p'ing ... 江平	546.9	35.44
			15, 16	Ts'ao-p'ing ... 漕平	558.0	36.16
			16	K'u-p'ing ... 庫平	569.1	36.88
			15	Kuei-p'ing ... 規平	...	...
			16	Sau-ma-p'ing ... 司碼平	574.6	37.23
			18	Kiang-p'ing ... 江平	560.0	36.29
	Wenchow	Fu ...	18	Ts'ao-p'ing ... 漕平	573.1	37.13
			18	K'u-p'ing ... 庫平	580.8	37.63
			18	Kuei-p'ing ... 規平	520.0	33.69
			18	Hsiang-p'ing ... 湘平	564.4	36.57
			18	Hsiang-p'ing ... 餉平	579.7	37.56

SILVER IN TAEI.				EQUIVALENT VALUE		Local Taels 100 equal Silver Dollars	COPPER CASH.			NOTES.
NAME	Fine- ness.	Fine Silver in each Tael.		Hankwan Taels 100 equal	Kuping Tis. 100 equal		De- nomi- nation	Actual number in Tiao.	Tiao in one Tael.	
	990	560.0	36.29	104.17	102.484					
	994	562.1	36.42	103.77	102.093					
	...	...	...	...	102.041	...	1	980	1.250	
	...	...	...	...	103.093	...	1	980	1.200	
	...	...	...	103.093	...	...	1	1,000	1.550	
雪花銀										
紋銀	...	...	...	...	...	146.86	1	974	1.550	
底潮銀									Note 6.	
杭銀	...	...	...	...	...	...	1	974		0.700
	990	560.0	36.29	104.16	102.484					
	988	556.7	36.07	104.782	103.089					
	960 to 990	...	...	...	105.840	135.32	1	1,000	1.530	
	...	...	...	...	...	...	...	...	Note 7.	
	...	...	...	...	...	...	...	...	Note 8.	
	935	523.6	33.92	111.10	109.600	136.00				
	...	...	...	105.83	104.500	144.10	1	990	1.555	
	...	...	...	...	104.120					
	...	...	...	...	104.000					
	...	...	...	...	102.252					
元寶銀	998	...	...	...	101.970					
顆子銀	997	568.0	36.80	102.70						
圓絲銀	991	...	...	...	105.451	136.15				
條頭銀	988	...	...	...	104.100					
	...	...	...	...	104.100					
	...	561.7	36.40	103.88	102.200	140.00	1	1,000	1.470	
元寶銀	1,000								Note 9.	
土銀	980	...	...	...	110,000					
洋錢銀	930	...	...	...	103.700					
	...	...	...	...	101.800					

PLACE.			Authority.	NAME OF TAIL.	WEIGHT OF TAIL.	
Province	Prefecture.	Town.			12.4325—1 Grains.	Gram- mes.
Fukien	Foochow	Fu ...	3	Ssü-ma-p'ing ... 司碼平	581.7	37.69
			21	Hein-i-p'ing ... 新讓平	...	...
			21	Hsiang-p'ing ... 湘平	...	...
			21	Wên-kwang ... 紋廣	...	...
Taiwan	Ch'uan-chow	Amoy ...	3	Shih-p'ing ... 市平	573.3	37.15
	Tai-pei ...	Tamsui ...	3	...	575.7	37.30
	Tai-nan ...	Takow ...	3	...	576.9	37.38
			26	K'u-p'ing ... 庫平	580.0	37.58
Kwangtung	Ch'ao-chow	Swatow ...	23	Guild ... 會館平	575.0	37.26
			3	Ssü-ma-p'ing ... 司碼平	576.7	37.37
			23	Market ... 市平	580.0	37.58
	Shao-chow	Fu ...	19	Ssu-ma-p'ing ... 司碼平	...	...
	Kwang-chow	Canton ...	3, 19	"	581.0	37.65
					576.0	37.32
	K'ung-chow	Hsin-hui ...	19	"	575.0	37.26
					574.7	37.24
	Lien-chow	Hoikow ...	3, 30	"	...	...
					...	...
Kwangsi	Yeong-kong	Mui-luk ...	3	K'u-p'ing ... 庫平	583.3	37.79
			3	Pu-p'ing ... 部平	575.7	37.30
			3	Ssü-ma-p'ing ... 司碼平	580.0	37.58
	Tai-p'ing ...	Lungchow ...	30	...	...	...
			30	...	...	...
			30	...	...	...
Yunnan	Tai-p'ing ...	Lungchow ...	28	Shih-p'ing ... 市平	530.0	34.34
	Lin-an ...	Mêng-tzü ...	25	... 蒙自平	574.5	37.22

COREA.—See Note 16.

SILVER IN TAEI.				EQUIVALENT VALUE		Local Taels 100 equal Silver Dollars	COPPER CASH.			NOTE.
NAME.	Fine- ness.	Fine Silver in each Tael. Grains. Grammes.		Hankwan Taels 100 equal	Koping Tls. 100 equal		De- nomi- n.	Actual number in Tiao	Tiao in one Tael	
Dollar	900	523.5	33.91	110.28	108.498					} Note 10.
...	1,000	...	...	...	102.459	...	1	1,000	1.405	
...	1,000	...	...	...	103.413					
...	...	...	...	...	...	...	1	1,000	0.800	
Dollar	900	516.0	33.43	111.75	109.945					
Dollar	900	518.1	33.57	111.32	109.522					
"	900	519.2	33.64	111.114	109.319					
"	900	522.0	33.82	111.37	...	...	1	1,000	1.700	
"	900	517.5	33.53	112.715	...	...	1	1,000	1.500	{ Note 11.
"	900	519.0	33.68	111.145	109.350					
"	900	522.0	33.82	111.75						
...	...	...	...	...	...	152.00	1	1,000	1.500	{ Note 12.
Dollar	900	522.9	33.90	110.40	108.616					} Rice and Wood Grain
"	900	518.4	33.59	112.526	...	...	...	...	...	
"	900	517.5	33.53	112.715						
"	900	517.2	33.52	112.80						
...	...	...	...	...	...	153.00	1	1,000	1.500	{ Note 13.
...	...	...	...	118.762	...	...	...	960		
Dollar	900	522.0	33.82	110.572	...	138.89	1	1,000	1.470	
...	...	...	...	...	...	...	...	912		
...	...	...	...	...	...	...	...	922		
...	...	...	...	...	...	...	...	986		
...	980	519.4	33.65	...	102.612	138.89	1	994	1.425	{ Note 14.
牌房銀	980	563.0	36.48	103.546	...	153.84 selling	} 11 1/2			
青雞額銀	980	563.0	36.48	103.546	...	142.85 buying		730	1.500	{ Note 15.
老禮紋銀	990	568.8	36.86	102.500	...					

CURRENCY TABLE.

10 Hsü 須 = 1 Hsün 巡	10 Hsien = 1 Wei 微
10 Hsün = 1 Chün 逵	10 Wei = 1 Hu 忽
10 Chün = 1 Ai 埃	10 Hu = 1 Ssü 絲
10 Ai = 1 Mo 漠	10 Ssü = 1 Hao 毫
10 Mo = 1 Miao 渺	10 Hao = 1 Li 厘 (cash).
10 Miao = 1 Chên 塵	10 Li = 1 Fên 分 (candarin).
10 Chên = 1 Sha 沙	10 Fên = 1 Ch'ien 錢 (mace).
10 Sha = 1 Hsien 緡	10 Ch'ien = 1 Liang 兩 (tael).

NOTES.

NOTE 1.—*Note on Tientsin Currency:*

Of the two equivalent values given for the Hang-p'ing Tael at Tientsin, the first (Hk. Tls. 100=T'u Tls. 105.00) is the rate at which foreign merchants pay duties, the second (Hk. Tls. 100=T'u Tls. 106.05) is the rate fixed for Chinese merchants in paying duties.

NOTE 2.—*Note on Chefoo Currency:*

Foreign merchants pay duties at the rate of Hk. Tls. 100=Ts'ao p'ing Tls. 104.40, instead of the rate given here, Ts'ao p'ing Tls. 106.40.

NOTE 3.—Rev. G. PARKER (7) states:—

Our remittances from Hankow are received in King-p'ing, and weigh in the street shops nearly three per cent more. The discrepancy of one or two mace is caused by the two slight squeezes at Bank and Cash-shop. The reason for the use of the King-yang scale at Lan-chou is that King-

yang in Shensi (but since the Mahommedan rebellion San-yuen 三原縣) is the chief commercial centre in the north-west. The Lan-chon silver, in the shape of "fowls' kidneys," is melted at the Pu-chêng-ssü Yamén and is considered the very worst in use; old lumps and Szechuen silver are better; silver from Honan is the best. In re-casting the silver after former alloy has been removed, three per cent copper is added to ninety-seven per cent purified silver to make one hundred Taels. At Ch'in-chou 秦州, the chief city in the south-east of the Province (Kansu) this quality is difficult to change except at a loss.

NOTE 4.—Rev. C. F. HOGG (22) states:—

涇市平 (called Ching-pu-ping. Pu=布?)

This scale takes its name from 涇陽縣 in 陝西, which was formerly the commercial capital of the province, but after its sack during the Mahommedan rebellion, the business was transferred to 三原縣. The latter city is the great wholesale mart for the north-western provinces. The Ching-yang scale is in ordinary use there and is also used by bankers in Kan-su and Shen-si and perhaps elsewhere. Drafts drawn in Hankow on Si-ran and Lan-chou banks are written in this scale, though the currency of both these cities differs considerably from it.

NOTE 5.—Mgr. HAMER (6) states:—

La balance de Lan-tcheou a une différence avec le Scen-con-fa 申公砵 de 24 par mille; 1,000 Tls. Scen-con-fa est 1,024 à Lan-tcheou.

NOTE 6.—Rev. E. T. WILLIAMS (17) states:—

1.—*The Tael.*

There are three kinds of Tael commonly used in Nankin: the "K'n-p'ing," known also as "Süeh-hwa Yin" (雪花銀),

the "Ts'ao-p'ing" (鑄平), called "Wān Yin" (紋銀) and the "Siang-p'ing" (湘平) or "Ti-ch'ao Yin" (底潮銀).

As a matter of fact, however, these are three methods of reckoning rather than three kinds of Tael. The "Ts'ao-p'ing" is the standard and the Tael commonly used in Nanking. In "Ts'ao-ping" 100 Taels are 100 Taels, but if a transaction is conducted in "K'u-p'ing," to every 100 Taels 2 Taels must be added; that is, 100 "K'u-ping" Taels are equal to 102 "Ts'ao-ping." 100 "Siang-ping" are but 98 "Ts'ao-ping." The "Ts'ao-ping" Tael contains 563.72 grains. The "Siang-ping" is used in paying the army and the prizes awarded students at the semi-monthly examinations, although the latter are supposed to be paid in "K'u-p'ing" Taels. My Chinese teacher says, it is a common saying among students that the prizes are awarded in "K'u-p'ing," the examining official pays them in "Ts'ao-p'ing," the minor officials distribute them in "Siang-p'ing," and by the time it reaches the student the Tael has become a Mexican dollar, which, on being exchanged, is found to be bad.

I have not been able to discover the fineness of the various kinds of silver or the number of grains of pure silver in each Tael. To every such question the bankers I have asked answer that they do not know. They determine the relative value by touch and colour, but say there is no established ratio. No doubt they are wrong, but I have not been able to push my inquiries farther.

A Mexican Dollar by weight is said to be .74 Tael, but it does not of course exchange at this rate. At present it is worth but .68 Tael. A hundred Taels are equal to 146.86 Dollars.

2.—Cash.

All the Cash used in this region are of one denomination—about $\frac{1}{1500}$ of a Tael; but there is a large quantity of bad Cash and small Cash in circulation.

A Tiao consists of 10 strings or 974 good Cash reckoned as 1,000. Each string contains nominally 100, but in reality only 98 or 95. The 95 Cash string is called a “Ti-tsz,” (底子) and is indicated by a knot on the end of the string. In every Tiao there are two “Ti-tsz.” In three strings or more one may be a “Ti-tsz;” in seven or more two “Ti-tsz” are allowed.

On every string of good Cash there may be two or three small Cash or counterfeit Cash,—as a matter of fact, there are many more.

These spurious Cash are called by various names: “Ts’ing-pau” (青板), “Hiao-p’ien-p’ien” (翳片片), “Shui-shang-p’iao” (水上飄), a light, thin variety, said to float on water, the “Sha-tsz-tsz” (沙子子) which contains a great deal of sand, and the “Ngo-yen” (我眼) in which the hole is very large and the coin very small. This is not to be confounded with an ancient coin of the same name. Other names are: “Sui-ts’ien” (碎錢) and “Lü-cheu-kw’an” (盧洲寬), so-called because much of this counterfeit Cash was formerly made at a place of this name in Anhwei.

There is still another variety of small Cash, known as “Hngg-ts’ien” (紅錢), because made of red copper. It is of ancient manufacture, and, although spurious, passes as good coin, on account of the quality of the copper. As many as five of this variety may be found on each string.

A Mexican Dollar exchanges for 1,030 good Cash in summer and 1,080 in winter. A Tael exchanges for from 1,500 to 1,600.

There are strings, however, known as "Yih-kiu-tih" (一九的), "Rh-pah-tih" (二八的) and "San-ts'ih-tih" (三七的), containing 10, 20 or 30 small to 90, 80 or 70 large Cash. One can, of course, exchange at a much higher rate for this sort of Cash.

At the pawn-shops a Tiao is 1,000 in reality as well as nominally. No shortage is allowed. This is true, too, in the payment of taxes and of bank discount.

I presume it was not your purpose to inquire as to the dates of the coins or the inscriptions they bear. There is great variety in this respect, though most of the Cash belongs to the present dynasty, by far the larger part bearing the style of Kien-lung (乾隆). It is quite common, however, to find coins of the Sung dynasty, and there are many varieties issued by old-time rebel kings. It seems strange to a foreigner to find coins two hundred years old in general circulation, but to be able to handle coins of the tenth century in this matter-of-fact way is simply marvellous. To the Chinese collector, of course, with his coins of two thousand years ago, these seem quite modern. Most of the light, thin cash mentioned above as the "Shui-shang-p'iao" (水上飄) bear the style "Kwang Chung T'ung Pao," are of unknown date, and are said to be of foreign coinage.^a

In using large quantities of these small Cash, 1,000 "Hung Ts'ien" best quality will pass for 900 Cash; of medium grade 1,000 are equal to 800, and of poorest quality 1,000 are reckoned but 700 good Cash. Of the "Ts'ing-pau" there are three grades, rated respectively at 600, 700 and 800 Cash per 1,000. There are three grades of the "Hiao-p'ien-p'ien" also which pass for 450, 500 and 550 per 1,000, and two grades of the "Sha-tsz'-tsz'" which command 400 and 500 cash per 1,000.

^a These are Annamite.—H. B. M.

4.—*Spanish Dollar.*

In addition to the varieties of currency just mentioned, the Spanish Dollar is also very commonly used, its value compared with that of the Mexican Dollar being as 10 to 8, that is, 8 Spanish Dollars are equal to 10 Mexicanas. The Spanish Dollar exchanges here for from 1,200 to 1,300 Cash. Going north from Nanking into the interior it is difficult to use the Mexican. Its exchange value falls as low as 900 Cash, but the Spanish Dollar is in demand in these districts.

5.—*Hang Yin.*

A variety of silver used here, though for certain special purposes only, is the "Hang Yin" (杭銀).

This too, however, is simply a method of reckoning. A Tael of the "Hang Yin" is but 700 Cash. Its use seems confined to the payment of marriage and funeral directors and yamen runners.

NOTE 7.—Rev. P. GAIN (11) states:—

Voici la valeur réelle du Tiao dans la préfecture (Sui-ning):—

au Tong-shan-hien 1 tiao vaut 988 sapèques

Soei-ning-hien	"	"	994	"
Sou-tsien-hien	"	"	992	"
Pei-tcheou	"	"	992	"
Fang-hien	"	"	988	"
Pei-hien	"	"	988	"
Tang-shan-hien	"	"	992	"

NOTE 8.—Rev. P. HOANG (1) states:—

The Provincial Treasurer's paying weight for the K'u-p'ing Tael is 37.32 grammes, and his receiving weight 37.42 grammes.

One Ts'ao-p'ing Tael of silver in 1736 was worth 700 copper cash, in 1780 was worth 900 cash, in 1796 was worth

1,400 cash, in 1853 was worth 2,000 cash, and is now worth from 1,500 to 1,700 cash.

Traders travelling to other regions on business usually take with them a balance 天平 of their own district, or a small steel-yard 戥子, or a hundred cash previously weighed by the scales of their own district, for the purpose of comparison with the weights in vogue elsewhere.

NOTE 9.—Dr. D. J. MACGOWAN (18) states:—

Ts'ao-p'ing Tael is used in markets and all ordinary transactions.

K'u-p'ing Tael „ „ „ paying taxes.

Hsiang-p'ing 湘平 Tael „ „ „ volunteers — called *hsiang*, because Hnpeh furnishes the greater portion of China's extemporised forces.

Chiang-p'ing Tael is used in dealings with Ningpo merchants.

Kuei-p'ing Tael (*Kuei*=usage) used in the Shanghai trade; the "usage" consists in discounting 98 taels=100.

Hsiang-p'ing 餉平 Tael (*Hsiang*=rations) is used to pay regular troops.

NOTE 10.—Mr. E. H. PARKER (21) states, respecting Foo-chow:—

The Hsin-i-p'ing Tael is worth 2.4 per cent and the Hsiang-p'ing Tael 3.3 per cent less than the K'n-p'ing Tael. The K'u-p'ing Tael being a definite weight in avoirdupois, any one can calculate for himself the weight of the others. The Hsiang-p'ing was introduced during the Rebellion and is only used for paying the soldiers. For sales of land only, an imaginary tael, called Wên-kwang, is used, and is always worth 800 large cash; this is to guard against variations in the silver market, and has no other practical exchange significance.

NOTE 11.—Rev. J. C. GIBSON (23) states, respecting Swatow:—

No distinction is made among the various foreign dollars in circulation as to the fineness of the silver. The Japanese Yen is now the popular favourite, on account of its uniformity in weight. In small transactions it is sometimes accepted as equal to Taels 0.72 without weighing. But the Japanese Yen, Mexican, Carolus, and American trade dollars, and the French Piastre de Commerce are all taken alike by weight without distinction as to purity.

It is impossible to answer this question (No. 6) because all dollars here are chopped, and no two are alike in weight. The standard \$1 Mexican = Taels 0.723 or upwards is only in use with foreigners. In native transactions the Swatow standard is \$1 = Taels 0.70 according to the 會館直秤, but there is also another standard in use, called the 市秤, according to which Taels 0.694 is taken as one dollar. In the country, Taels 0.68 is a common standard weight for the dollar.

NOTE 12.—Rev. C. BONE (19) states, respecting Shao-chon:—

At present the Tael is 994; an old scale was 992; but now those who sell pork, wood, paper and tobacco use a Tael worth only 991. If 1,000 equal pure silver, the silver in general use equals 900, and 100 must be added if it were to be melted *fine*, and given to the mandarins. But there is a silver said to be in use which, if 1,000 equal perfect, can be reckoned at 960, so that it will be perfect if 40 only is added. If K'np'ing is worth 100, and that is perfect, the general currency must add from 6 to 10 Taels according to its pureness.

NOTE 13.—Rev. C. BONE (19) states, respecting Hsin-hni:—

I have not been able to ascertain that there are any special names for the different Taels, except the perfect Tael, which is called 足司碼. This is the ancient Tael and the ideal. In business, Mexican dollars are used or broken dollars, and the

"touch" of the silver will of course depend on the touch of the original dollars. There are however three kinds of Tael in general use, and called after the business-people among whom they obtain:—

- a. In banks, warehouses, and retail shops in which corn, oil and rice are sold, the Tael is reckoned at 997 instead of 1,000.
- b. The tobaccoist's Tael is 998 instead of 1,000.
- c. In purchase of land or houses the perfect Tael 足司碼 is used, which is 1,000 or even slightly over.

About 10 Taels (sometimes a little more, sometimes a little less) must be added to local Taels 100 to make them equal to the Government or ideal Tael.

NOTE 14.—Mr. A. AGASSIZ (28) states:—

French dollars, which occasionally find their way to Lungchow from Tonkin, are worth from five to eight cash each more than the other dollars. [*N.B.*—The weight given for the Lungchow Tael seems doubtful, but I have no means of checking it.—H.B.M.]

NOTE 15.—Mr. A. P. HAPPER (25) states, respecting Mèngtzu:—

(1) The sycee most current in Mèngtzu is the *Chieh T'ing* (解錠), more commonly known as the *Pai-fang* (牌坊) ingot. When laid flat on a sheet of paper and traced with a pencil, it has eight curvilinear lines—a figure not unlike certain brass pieces inserted in wood to protect key-holes in foreign articles of furniture. The thickness of the ingot, at the two ends, is considerably reduced by the impression of the smelter's *chop* stamped on the face of it, so in that aspect of it, the ingot might be likened to Faber's double-ended erasers with the corners of the rubber worn round. The same stamp is lightly impressed on the middle section too. In weight the pieces vary from two taels up to five taels.

(2) *The Hsi ssü hsiao k'ò t'ing* (細絲小鏹錠), called colloquially the *Mu chi k'ò* (母雞鏹), is a small ingot weighing from a few mace up to nearly two taels. In shape it is like a narrow oblong cup with spiral lines on the top, not unlike the lines in the skin of the fleshy part of the human thumb.

(3) In shape like No. 2, but purer in the quality of the silver, and cast in ingots of five taels and fifty taels weight, is the *Hsi ssü hsiao pao yin* (細絲小寶銀), called also the *Lao ts'ao wên yin* (老槽紋銀). These two kinds of sycee have a limited circulation in Mèngtzn̄, but they are known throughout the province. The latter is much sought after by the aborigines because of its purity.

(4 to 6) *The Ch'uan* (川) *Kuang* (廣) and *Mo* (墨) ingots are seen here occasionally. The *Mo* ingot is Tonkinese sycee, and is so called because it resembles, in shape, a stick of India ink.

As each province has its own *K'ü-p'ing* tael of pure silver, I give as the standard of comparison the *Kwan-ping* (關秤). On our *Kwan-ping* scales, brought from Canton, Hk. taels 100=Mtz. taels 101.4775. The equivalent in *value* depends upon the touch of the silver. The figures, as given, are only approximate, because the scales in the city differ.

Mtz. Tls. 100=\$153.84 when selling dollars, but only \$142.85 when buying them. In other words, \$100.00 will only exchange for Mtz. Tls. 65.00 of *Pai-fang* silver when parting with them, but it will take Mtz. Tls. 70.00 to repurchase them.

The same rates are quoted for the French Tonkinese dollars, but neither they nor the Mexican are current here.

NOTE 16.—Mr. T. E. HALLIFAX (27) states of Seoul, Corea:—

The only coin in currency amongst the natives is the bronze cash, and the value of this in Mexican or Japanese

dollars varies every day, from 1,200 to 2,000 cash per dollar. Amongst the higher class of traders, the Japanese silver dollar is a favourite, while owing to having been largely taken in with spurious Mexicans by Chinese adventurers, the Mexican dollar is looked upon with great suspicion and disfavour, and is consequently most difficult to pass. Chinese sycee is also current in Corea, but the precise value in exchange is difficult to state, owing to the variation in the value of cash. Very recently Japanese Bank notes and Government notes have come into favour among the higher class of Corean merchants in Seoul and the ports *only*. Some time ago the Corean Mint succeeded in coining a few Corean silver dollars, but these first specimens (a few thousand) went into the Palace, probably for ornaments for the King's wives, and then the coining was stopped. So that at present we have in Corea as native coins only the common cash, and as a foreign medium, Japanese silver dollars and paper money. Mexican dollars are now rarely seen. Eight or ten years ago the Corean Government coined a limited quantity of pure silver coins of three denominations, the intrinsic value of the set of three coins being about \$1.10. These, however, in 1883 and 1884, were mostly bought up by the Japanese Bank, sent to Osaka, and recoinced. The few remaining were bought by private individuals as curiosities.

NOTE 17.—Rev. F. P. GILMAN, having recently made an overland trip from Macao to Hainan, through Yan-ping, Yeong-kong, Tin-pak, Mui-luk, Liu-chow, crossing the straits opposite Hoihow, writes (November 1889):—

“At Yeong-kong a dollar sold for only 912 cash. At Mui-luk a dollar brought 922 cash. The dollar increased in value as we neared Hainan. At Hai-on, opposite Hoihow,

it was 936 cash, and at Hoihow about 960 cash. Everywhere they said the dollar had fallen in value, from 100 to 200 cash during the previous eight months."

NOTE 18.—Regarding SHENSI and KANSU, Rev. C. F. Hogg (22) states:—

Only the ordinary 銅錢 in Shensi and Kansu. Sometimes 當十 cash are found, but they are used simply as common cash. In Lanchou 蘭州 a *tiao* is=1,000 cash. 九六錢 (i.e., 96 per 100), each thousand cash being short 6, (六個底子) extra. The number of *ti tsz* varies with the *hsiens*.

In Si-ngan (西安府) 對板兒錢 is used, i.e., one *tiao*=500 cash. In 西甯府 (Kansu) the *tiao* has this value.

In 岐山縣 (Shensi) 二八錢 is used, i.e., one *tiao*=800 cash. In 漢中府 (Shensi) and 秦州 (Kansu) the *tiao*=1,000 cash. The 1,000 cash *tiao* is known as 老, 大, or 銅錢. The 500 cash *tiao* as 毛, 小, or 對板. 毛 and 小 are sometimes used of the poorer, small cash, but they are used in this case with reference to quantity. In some other districts in Shensi (寶雞縣, for instance) the *tiao*=700 cash. The 吊 of whatever kind, is also called 串. From experience in several provinces, I should say that the local tael averages 1,500 cash in value all the year round. In Han Chung it has sunk to 1,100 odd, and risen to close on 1,900. The demand for cash at the New Year increases its value. In Han Chung and Si-ngan the price of silver is usually between 1,500 and 1,600 cash. In Lanchou from 1,450 to 1,550. Rain, examinations, and the opium season increase the demand for cash and so raise its price.

The following note by Mr. W. S. EMENS, of the U.S. Consulate-General, Shanghai, was received after the tables on pp. 58-63 were printed:—

The name of the tael current in SHANGHAI is 規銀 or 規. Each tael contains .98 pure silver. Shanghai Tael 1.1114 is equivalent locally to one K'u-p'ing or Hai-kwan tael.

The relation of the Mexican Dollar to the local tael is a fluctuating one, the ratio of exchange being fixed at the 錢業公所 daily.

The average value of a Mexican Dollar may be put at Taels .73. The "cash" current at Shanghai are from the various provinces with a percentage, probably, 10 per cent, of Japanese cash.

The term *tiao* is not usually employed, but the word for *thousand* is used in its stead. In ordinary business transactions 99 cash are counted as 100. Only in a 當舖 is a full string of one hundred cash given. One Mexican Dollar buys from 1,020 to 1,200 *cash*, according to the market demand for one or the other.

PAPER MONEY.

Cash notes are common in many parts of the Empire, and are extensively used from their convenience. See especially the memorials of the Governor of Kirin given in the *North-China Herald*, Vol. XLII, page 175, and Vol. XLIII, page 50. Silver notes, except those of the foreign banks, are not used at all. The remarks of the various contributors on this subject are abstracted as follows:—

SHENG-KING:—Newchwang. Mr. W. B. RUSSELL (29) states:—

Cash notes are in circulation to the amount of about 3,000,000 *tiaos* or 300,000 taels. The reason why they are

so cheerfully accepted in the market, is because they are convenient to be carried and no exchange of debased cash is to be made.

No Bank notes or cheques are used locally.

CHIHLI:—Peking and Tientsin:—

Cash notes are in common use.

SHANTUNG:—Chi-nan-fu. Rev. G. REID (5) states:—

Cash notes may be used within a distance of 100 li, being accepted by salt-dealers and some of the shop-keepers. In the city they are accepted, if from reliable shops.

Supposing that by "Bank Notes" is meant something other than "Cash Notes," I would say that such are used as cheques only. In this city there are large exchange-shops, where cheques from Shanghai, Peking, and other parts of the country may be exchanged for silver, or where such cheques may be purchased for other places.

SHANSI:—Lu-an-fu. Rev. M. POELL (20) states:—

Cash notes are used of denominations from 500 to 5,000 cash; they are the same as those I have seen in other provinces. Silver notes are not used.

SHENSI }
KANSU } Rev. C. P. HOGG (22) states:—

In Si-ngan, paper notes, value 1,000 (*i.e.* 500) and 2,000 (*i.e.* 1,000) cash, are issued and largely used. Spurious notes are afloat in quantities, so that neighbouring money-shops are usually appealed to before the notes change hands. In Lanchow, paper notes equivalent to 1,000 cash (actual value) are largely used also.

In Han Chng, oil-cloth notes are used,—value 1,000 cash. Different hsien and large towns in this and other fus also issue

notes. The Han Chng fu notes present quite a creditable appearance, are stout, of a yellowish brown color, and are oiled after signature or rather after value and cipher have been inserted; these appear to be the equivalent of the "signature" in Chinese bank notes. Banks sometimes shut their doors, but the notes of established houses are readily accepted without reference. Silver drafts may be given in payment for goods. They are always payable to bearer (認票不認人, 照票發銀) notwithstanding that there may be no intimation of the fact in the document itself and that the payee's name may be inserted in full. A special clause has been added at times by some of the Hankow bankers, in drafts made payable to foreigners. 足紋銀 is interpreted relatively, the standard being the 街市銀 of the place on which the draft is drawn.

Rev. G. PARKER (7) states:—

Both oil-cloth and paper cash notes are used. No official control is exercised as to their issue.

Panics sometimes occur at the closing of several money-shops. The first from swindling, others in consequence of the run on their bullion in cashing notes. For the issue of silver drafts, 協同慶, 天成亨, 蔚豐和 are the three Chinese bankers that have agencies in Kansu; Lanchou all three, Kanchou two, Liangchou and Suchou one each. Chinchou formerly had an office, but it has been closed since the Rebellion.

Mgr. F. H. HAMER (6) states, respecting Kansu:—

Pas en usage dans la plus grande partie de la province.
(Cash notes).

Negative. (Silver notes).

KIANGSU :—Nanking. Rev. E. T. WILLIAMS (17) states :—

The use of paper money is very common in Nanking, especially of the 300, 400, 500 and 1,000 cash notes, called "P'iao-tsz," (票子). These are very well engraved, and printed on good, strong paper in red and blue inks. A note of ordinary size is $7\frac{1}{8}$ inches long and $4\frac{1}{8}$ inches wide. The design consists of a border, usually made up (largely) of human figures. One before me, as I write, has a border composed of characters and scenes from some ancient drama. Within this is a second border, consisting of an extract from the classics in very small type. Inclosed by these borders is an oblong space containing the name of the bank, its location, the value of the note, its number and date and the mark or style (號) of the bank. Before being put in circulation the note must also bear the great seal of the bank upon its face. Each person too, as the note passes through his hands, adds his private mark, so that it soon becomes defaced. There are also 2,000, 5,000 and even 100,000 cash "p'iao-tsz," but these are not so common. Notes for 50, 100 and 200 cash, printed upon red paper and called "T'iao-tsz" (條子) are used at New Year, chiefly for presents to children and servants. At other times they are rarely seen. The small foreign silver pieces are slowly taking the place of these. Silver notes are used in trade, but not to any great amount. Their use is almost wholly confined to merchants in their dealings with one another.

SHANGHAI :—Mr. W. S. EMENS writes :—

Cash notes or paper money promising to pay copper cash are not used in Shanghai. Mexican Dollar notes and Tael notes issued by the European Banks are used extensively by natives.

HSÜ-CHOU-FU. Rev. L. GAIN (11) states:—

Les billets de banque abondent. Les principaux bourgs en émettent tous des différents qui n'ont cours que dans un rayon assez restreint et perdent de leur valeur en passant dans une autre localité. Ils ont la valeur nominale d'un *tiao* ou *Tchoan*, 串, toujours payable en grandes sapèques.

On ferait une belle collection des ces billets de banque, vrais petits chefs-d'œuvre d'imprimerie. J'en ai plus de 50 espèces entre les mains.

CHEKIANG: Ningpo. Mr. T. F. PETTUS (15) states:—

Cash notes issued by firms whose credit stands high are in general use among the merchants for all amounts, and in many cases preferred to silver. When cashed a premium of $\frac{1}{2}\%$ is generally charged, and in some cases 1% to 2% .

Dr. S. P. BARCHET (16) states:—

Paper money, as a universal and unquestioned tender, is unknown in Ningpo, but wholesale dealers (*e.g.* fishmongers) will give notes, 銀貨票, payable 10 days after issue, which are readily taken instead of money, for they can be cashed by bearer at any time. Shops also issue cash or promissory notes, but these will not be paid till they fall due (usually from 10 to 40 days). Cash notes issued by small firms are risky in proportion to the length of time before they fall due. The greatest risk is incurred where parties borrow the name and credit of other firms, issuing cash notes in their name. It often happens that when such cash notes fall due they are not even then paid in hard cash but in cash notes on somebody else and again on somebody else till the last holder finds himself the loser. It is probably owing to such experience that cash notes are endorsed or verified, and when cash notes change hands reference is made to the original party

issuing them, to have them again verified. This involves a great loss of time and makes most people prefer cash. When it is wished to have the amount paid into a bank or other firm, a small deduction is made (from 5 to 10 cash in the dollar). Bank notes are not used otherwise than as cheques.

WËSCHOW. Dr. MACGOWAN (18) states :—

Paper money circulates to a very limited extent. Cash notes are issued by a few traders, and cheques by bankers, yet they can hardly be said to perform the function of money as a circulating medium.

FUKIEN: Foochow. Mr. E. H. PARKER (21) states :—

Cash notes or *ch'ien-p'iao*, 錢票, for 100, 200, 300 cash are called *p'iao-t'iao*, 票條; for 400, 500, 600 they are called *hsiao-p'iao*, 小票. There are no others but for thousands, from one to ten, called *ta-p'iao*, 大票.

A cheque is called *chi-ch'ien*, *tsz-t'iao*, (支錢, 字條). Bank notes range from one tael to two thousand taels, and are called *yin-p'iao*, 銀票.

TAIWAN: Takow. Mr. MAK SZECHÉ (26) states :—

No cash notes or paper money of any kind used here. Bank notes are not used by natives. They all use dollars in silver.

KWANGTUNG: Swatow. Mr. L. GRUNAUER (24) states :—

There is no paper money in Swatow representing cash. Bank notes are a new invention; their use commenced certainly not before last year. The circulation is not large, and is restricted to the port.

SHAO-CHOW-FU. Rev. C. BONE (19) states :—

Bankers' cheques are used as money orders to and from the Provincial city 省城 (Canton).

HSIN-HUI. Rev. C. BONE (19) states :—

Paper money not used now, but said to have been used during the Ming dynasty.

Hongkong Bank notes are used, and will pass at par in business transactions, but if changed at a money-changer's or a bank, one fan (100 fan=1 Leung) will be deducted.

PAKHOI.—Paper money, Chinese or foreign, not used.

KWANGSI : Lungchow. Mr. A. AGASSIZ (28) states :—

Cash notes and bank notes not used.

YUNNAN : Mêngtzü. Mr. A. P. HAPPEL, jr. (25) states :—

There are no cash notes in Mêngtzü. There is no bank in the city.

WEIGHTS.

Catty 斤

PLACE.			Authority.	NAME OR USE.		WEIGHT	
Province.	Prefecture.	Town.				1 = 28.35 Ounces avoirdupois	Grammes.
...	...	...	...	British Treaty	...	21.38	604.90
...	...	...	...	French "	...	21.32	604.53
Chihli	Peking	...	2	Ten ...	...	4.00	113.41
Shantung	Lin-ch'ing	Chou ...	4	"Thirty-four"	三十四的	19.95	565.60*
			4	"Thirty-five"	三十五的	19.40	550.00*
			4	"Thirty-six"	三十六的	18.85	534.50*
	Chi-nan	Fu ...	5	"Three-catty"	三斤秤	22.00	623.75*
			5	"3 catties 4 taels"	三斤四兩秤	20.00	567.10*
			5	"3 catties 6 taels"	三斤六兩秤	18.70	530.20*

* Note 1.

Catty 斤

PLACE.			Authority.	NAME OR USE.		WEIGHT	
Province.	Prefecture.	Town.				1 = 35.26 Ounces avoirdupois	Grammes.
Honan	...	...	2	Coal	...	28.00	793.88
	Nan-yang	Fu ...	9	...	...	20.40	578.40
	Lan-chon	Fu ...	7	...	...	20.20	572.75
Kansu	Liang-chou	Fu ...	6	...	...	21.70	615.33*
	Lan-ch'ing	Chou ...	7	...	...	21.45	608.20
Hnpeh	Han-yang	Hankow	22	...	...	20.20	572.75
Kiangsu	...	...	1	Ts'ao-p'ing	{ 清平 天平秤 }	20.66	585.79
	...	...	1	T'ang ...	塘秤	27.25	773.25
	...	...	17	Ts'ao-fa	清法	20.60	601.00
	Kiang-ning	(Nanking)	17	Su-fa ...	蘇法	18.55	525.90†
	...	...	17	Oil, etc.	...	19.70	558.50†
	...	...	17	...	...	23.20	657.72
	Yang-chou	Hai-mên	1	Ch'eng-sha	正紗秤	25.55	724.90
	Tai-tsang	Tsung-ming	1	Ch'ê-chuang	折庄秤	24.90	706.60
	Soochow...	Fu ...	1	Chê ...	折 秤	19.75	560.16
	Sung-kiang	Shanghai	1	Gnild ...	會館秤	18.60	527.21‡
Chekiang	...	...	1	Foreign trade	來洋秤	20.40	578.47
	...	...	15,16	Official ...	官 秤	20.44	579.47
	...	...	15,16	{ Cheh ...	折 秤	19.10	541.48
	...	...	15,16	{ Tiao-ku ...	糧穀秤	16.00	453.50
	...	...	15,16	Shui-kno	水菓秤	16.44	466.07
	Ningpo ...	Fu ...	16	Tau ...	租 秤	19.78	560.76
	...	...	16	Medicines	藥物秤	21.33	604.90
	...	...	15,16	Family ...	家 秤	21 to 42	{ 595 to 1,190
Chekiang	...	...	16	Sai-ma	司碼秤	22.00	623.70
	Wênchow	Fu ...	18	...	...	21.28	603.15

* Note 2.

† Note 3.

‡ Note 4.

Catty 斤

PLACE.			Authority.	NAME OR USE.		WEIGHT.	
Province.	Prefecture.	Town.				1 = 28.35 Ounces avoirdupois.	Grammes.
Fukien	Foochow	Fu	21	{ General	...	16.00	453.60*
				{ Rice	...	21.33	604.90
				{ Fish	...	26.67	756.10
Taiwan	Tai-nan ...	Takow... {	26	{ Fruit	...	18.67	529.20
				{ General	...	21.33	604.90
			23	General	...	21.33	604.90†
	Ch'ao-chow	Swatow ... {	23, 24	Wholesale	...	26.67	756.10
			24	Various ‡			
	Shao-chow	Fu	19	General	...	21.33	604.90
			19	General	...	21.33	604.90
		Canton {	19	Metals & Fruit	...	20.00	567.00
			19	General	...	21.33	604.90
		Hsin-hui {	19	Country use ...		34.67	982.80
			3	Sai-ma	司碼秤	21.22	601.60
	Lien-chow	Pakhoi ... {	3	Raw Hides ...	...	31.83	902.40
Kwangsi	Tai-p'ing	Lungchow...	28	Market	市 秤	20.90	593.00
				{ Hill products	山貨秤	23.50	666.66
Yunnan	Lin-an ...	Mêng-tzū ...	25	{ Po-fu	百福秤	21.90	621.60§

* Note 5.

† Note 6.

‡ Note 7.

§ Note 8.

For information relating to Ning-kuo-fu and Kwang-té-chow in the province of Anhwei

See Note 10, page 89.

WEIGHT TABLE.

16 Liang 兩 (tael) = 1 Chin 斤 (catty).

100 Chin = 1 Tan 担, 擔 (picul).

For weights in subdivision of Liang, *see* CURRENCY.

NOTES.

NOTE 1.—Rev. H. P. PERRINS (4) states:—

The common one [in Lin-ch'ing-chou] about which everyone knows is the catty of 16 taels, and called the thirty-five (三十五的), because using this catty ten strings of cash weigh 35 catties 斤. The cash has 49 coins for one hundred, which gives 490 coins to the tiao or string. Using my weighing pole (which is as likely to be right as any other, for I can find no standard) I find that this string of cash weighs 54 taels=65.5 U.S. oz., which gives one catty =19.41 U.S. oz. There are also at least two other catties, i.e., the 34 and 36, of which the explanation is as of the 35. I find that in the cotton hong they use the 34 (which they call the 架子) for buying and the 35 for selling.

Rev. GILBERT REID (5) states:—

In Chi-nan-fu there are three kinds of weight for catty in common use, one called the "three catty four tael scale" (三斤四兩秤), one the "three catty scale" (三斤秤), and the third the "three catty six tael scale" (三斤六兩秤). These names are given by weighing one tiao [490] of the Chi-nan-

fu cash, this being taken as a basis or standard of comparison. Of these, one catty of the first, or "three-four" weight, is equal to 20 ounces avoirdupois; the catty of the second, or "three-catty" weight, is equal to 22 ounces; and the catty of the third, or "three-six" weight, is equal to 18.72 ounces. The one generally used is the first named, or "three-four" weight.

[N.B.—In connection with these two notes, the fact is notable that according to the Imperial Decree of 1886 ordering new coinage of cash, the weight of the cash is one mace, and this weight was adhered to in Shantung. On this basis 10 cash weigh 1 tael, and 490 cash weigh 49 taels, equal to 3 catties 1 tael. Of what scale this was, I do not know (K'u-p'ing I suppose)—and it is left to the reader to make his deductions.—H.B.M.]

NOTE 2.—Mgr. HAMER (6) states:—

Ici [Kansu] on compte pour un tan 担 la charge d'une mule, 240 livres [catties]. Un char transporte 5 tan.

NOTE 3.—Rev. E. T. WILLIAMS (17) states:—

1. *Kin*.—The ordinary Catty or *Kin* used in Nanking consists of 16 Liang (兩), 1 Liang being equal to 1.2885 ounces avoirdupois. This is known as "Ts'ao Fah" (曹法). We have also the "Su Fah" (蘇法) in which either 14.4 Liang or 15.3 Liang equal 1 kin. The "Su Fah" is used in buying raw cotton, metals, certain kinds of fruit and bread. Another sort of kin contains 18 Liang, and is used in sale of certain oils as the "Ma yiu" (麻油) and the "Teu yiu" (荳油) and other articles.

3.—*The Liang*.—The Tael or Liang (兩) of commerce is identical with the Tael of currency, and although the Kin varies, the Liang remains the same.

Additionnal weights are :—

5 Sz' (絲) = 1 Sheh (緡).

A double Sheh = 1 Shing (升), not the same as the measure of capacity which is known by this character. This is used in weighing yarns.

80 Threads (縷) also equal 1 Shing or Skein.

24 Scruples (銖) = 1 Liang.

1.5 Liang = 1 Tsieh (撻).

Double Tsieh = 1 Kū (舉).

Double Kū = 1 Ts'iang (鐸).
or 1 Hwan (銓).

6 Liang also = 1 Chw'en (川).

1 Great Half-ounce (半兩) = 1 Kiün (鈞).

10 Kiün = 1 Hwan (銓).

2 Hwan 4 Kiün = 1 Kin.

24 Liang = 1 Yih (鎰).

Many of these weights are used only in the yamén.

NOTE 4.—Rev. P. HOANG (1) states :—

This catty [Hui-kuan, or Guild catty, of 527.21 grammes] is in use in Shanghai, in the Guild House of which place is kept a mass of copper, called 糖租, the weight of which equals 122 catties of the said scale, and which serves to rectify steelyards of this scale.

NOTE 5.—Mr. E. H. PARKER (21) states with respect to Foochow :—

The scale of commerce is three-fourths that of the standard, for all articles but rice. The standard is the K'u-p'ing ounce of silver. Thus 100 catties of anything but rice are 75 catties weight in silver. This is called the Hung-hua-ch'êng 紅花秤, and is always used unless you ask for the standard and pay prices in proportion.

NOTE 6.—The Rev. J. C. GIBSON, of Swatow (23) states :—

There is a considerable variety of standards. The usual one for small transactions is the 司馬秤 of 16 taels to the catty. For larger dealings the 汕頭管秤 is used, according to which the catty weighs 20 taels.

Formerly there were at least three standards in use by small dealers in Swatow, making the catty = 12 taels, 14 taels, and 16 taels respectively. The local petty Mandarin, a number of years ago, fixed a uniform scale of 16 taels to the catty, and provided standards for reference. This reform has fallen into abeyance and the old variety has re-appeared with more uncertainty than before as to the scale sanctioned by usage for each kind of transaction. The usage also varies in the different market-towns, and different standards are used for different classes of produce. In some scales two taels or thereby are taken as one. Thus, in the market-town of Mien-fu, 棉湖, 60 miles west of Swatow, I noted the following scale :—

For Ducks and dried cuttle-fish, 1 Catty = 40 Taels

„ Fowls	„ „	= 36 „
„ Pork and salt fish	„ „	= 32 „
„ Sweet potatoes	„ „	= 28 „
„ Tea and tobacco	„ „	= 18 „
„ Vegetables, charcoal & fruit	„ „	= 16 „
„ Hemp and flax	„ „	= 15 „

This is a specimen of what holds with endless variation elsewhere.

The Picul (担) weighs 100 catties. Its weight therefore varies with that of the catty, but as the 汕頭管秤 is the usual standard for large transactions, the standard picul weighs 125 of the normal catty of 16 taels. The 石 is a measure of capacity containing 10 Pecks (斗) and is not used as a standard of weight.

NOTE 7.—MR. GRUNAUER (24) states :—

There are 4 different kinds of weight used in Swatow ; none is used more than the other, as each is used for a different kind of cargo or business ; they are the—

汕頭針秤, which is equal to 125 catties Customs weight,
i.e., one of these piculs, if weighed on Customs
scales, gives $1\frac{1}{4}$ picul.

漳林針秤 on the same bases as above is 4% more.

糖針秤 " " " 30% —

冰菓秤 " " " 25% less.

This last weight is used by petty shop-keepers and is practically a squeeze.

NOTE 8.—MR. A. P. HAPPER, jr., (25) states :—

Two catties are in use in Měng-tzū : one, the Hill Products (山貨) or Tavern (店) catty, for weighing cotton, fungus and certain kinds of produce, not numerous. It equals 18 Měng-tzū p'ing taels in weight, and is supposed, consequently, to weigh 666 grammes, but I could not obtain any exact weights.

The other catty is that of the Po-fu (百福), or, Canton (廣) steelyard, which is the one in common use. It should weigh 621.6 grammes.

The same steelyard is used for both kinds of catties, as there are two sets of scales marked on it.

NOTE 9.—THE REV. F. P. GILMAN states that at Yeong-kong he was informed that a catty was made up of 60 taels. At Mui-luk the catty is 20 taels.

NOTE 10.—THE REV. PÈRE DEBRIX states with regard to Ning-kuo-fu and Kwang-tê-chou, that the usual weight of the catty is 16 ounces, but a 14 oz. catty is employed to weigh iron, and one of 18 ounces for various other things. The Peck of dry rice contains 16 kin at Ho-li-k'í, but in other places $14\frac{1}{2}$ or 15 kin.

Tou 斗

PLACE.			Authority.	CONTENTS.				CAPACITY.	
Province.	Prefecture.	Town.		Grain.	Local Catties.	2,2046 = 1		61.027 = 1	
						Lbs. av.	Kilo.	Cubic inches.	Litre.
...	...	...	2	Rice	10.0	...	...	452.0	7.41
...	...	...	2	"	6.5	...	...	309.6	5.07
...	...	...	2	"	18.0	...	...	587.5	9.63
...	...	...	2	"	14.0	...	...	632.7	10.37
Sheng-king	Fêng-t'ien	Newchwang	29	"	38.0	50.67	22.980	2,475.0	40.56
Shansi	Lu-an ...	Fu ...	20	"	18.0				
Shantung	Lín-ch'ing	Chou ...	4	{ Millet	24.0	28.70	13.016	}	876.4
					22.0	27.00	12.247		
Shantung	Chi-nan...	Fu	5	Rice	...	42.50	19.278	1,618.8	26.53
			5	"	...	38.75	17.577	1,485.1	24.84
Kansu	Liang-chou	Fu ...	6	"	40.0				
	Lan-chou	Fu ...	6	"	120.0				
			7	Wheat Flour	70.0				
Honan	Nan-yang	Fu ...	9	Rice	40.0	...	...	1,049.2	17.19
Anhui	Ying-chou	Huo-ch'iu ...	10	"	35.5				
Kiangsu	...	...	1, 2	...	...	...	...	629.2	10.31*
	Kiang-ning	(Nan-king)	17	Rice ...	14.0	18.04	8.123	558.3	9.15
			17	Melon-seeds	15.5				
				Rice ...	28.0				
				Wheat ...	26.0				
				Barley ...	15.0				
				Rye ...	12.0				
	Hsü-chou	Sul-ning ...	11†	Maize ...	20.0				
				Sorghum ...	22.0				
				Beans ...	25.0				
				Peas, green	29.0				
				" yellow	24.0				

* Note 1.

† Note 2.

斗
 升

PLACE.			Authority.	CONTENTS.				CAPACITY.	
Province.	Prefecture.	Town.		Grain.	Local Catties.	2,2046=1 Lbs. av.	Kilo.	61.027 = 1 Cubic Inches.	Litre.
Kiangsu	Hsü-chou	Sui-ning	11*	Peas, black	25.0				
				Petits pois	26.0				
				Sesamum	14.0				
				Colza... ..	18.0				
				Melon-seeds	15.0				
	Tai-tsang	Tsung-ming	1	...	...	...	...	767.1	12.57
	Fu		1	...	...	...	...	640.8	10.50
			1	...	...	...	...	645.6	10.58
			1	...	...	...	...	649.3	10.64
			1	...	...	...	...	686.5	10.43
			1	...	...	...	...	651.1	10.67
	Soochow	Country	1	...	...	...	...	673.1	11.03
			1	...	...	...	...	692.0	11.34
			13	...	...	...	...	622.5	10.20
			1	...	...	...	...	662.7	10.86
			1	...	...	...	...	671.3	11.00
	Kia-ting	Fu	1	...	...	...	...	670.1	10.98
	Chang-chou	Wu-hsi	1	...	...	...	...	640.8	10.50
			1	...	...	...	...	644.5	10.56
			1	...	...	...	...	648.1	10.62
	T'ung ...	Chou ...	1	...	...	...	...	751.2	12.31
			1	...	...	...	...	888.5	14.56
			1	...	...	...	...	742.7	12.17
	Sung-kiang	Hsi-king	1	...	...	...	...	757.3	12.41
			1	Rice	...	...	...	728.6	11.94
			1	Beans	...	...	...	655.4	10.74
		Shanghai	13	...	...	...	...	678.0	11.11

* Note 2.

Tou 斗

PLACE.			Authority.	CONTENTS.				CAPACITY.	
Provinces.	Prefecture.	Town.		Grain.	Local Catties.	2,2046 = 1 Lbs. av.	Kilo.	61.037 = 1 Cubic Inches.	Litre.
Chekiang	Ningpo	Fu ...	15	Rice	14.0	18.30	8,300	591.8	9.69
			16	"	16.0	...	...	565.0	9.26*
			16	Maize	15.0				
			16	Millet	18.0				
	Wênchow	Fu ...	18	Rice	11.75	15.63	7,090	502.2	8.23
Taiwan	Tai-nan	Takow ...	26	Coarse rice	14.25	19.00	8,620	617.5	10.12†
				Fine "	11.25	16.00	7,258	529.3	8.67‡
Kwangtung	Ch'ao-chow	Swatow	23	Rice	14.5	...	...	731.0	11.98
			28, 24	"	...	24.00	10,886	768.8	12.60
			24	"	...	20.00	9,072		
			24	"	...	25.33	11,490		
	Shao-chow	Fu ...	19	Rice (soldiers')	12.5	...	...	488.4	8.01
			19	" (people's)	9 to 10				
	Kwang-chow	Canton ...	19	" ...	6.25§				
		Hsin-hui ...	19	" ...	6.25				
	Lien-chow	Pakhoi ...	3	Rice ...	22.5	29.75	13,490	952.5	15.61
				Paddy ...	18.0	...	...		
Kwangsi	T'ai-p'ing	Lungchow...	28	Rice	6.25	8.17	3,704	264.0	4.33
Yunnan	Lin-an ...	Mêngtsü ...	25	"	60.0	82.10	37,900	2,598.5	42.58
Corea	...	...	14	"	...	40.00	18,144	1,308.0	21.36

* Note 3.

† Square.

‡ Round.

§ Note 4.

|| Note 5.

CAPACITY TABLE.

10 Ho 禾 = 1 Hsi 稊	10 Su = 1 Kuei 圭
10 Hsi = 1 Pi 秭	10 Kuei = 1 Tso 撮
10 Pi = 1 K'ang 糠	10 Tso = 1 Ch'ao 抄
10 K'ang = 1 Chi 稷	10 Ch'ao = 1 Shao 勺
10 Chi = 1 Shu 黍	10 Shao = 1 Ko 合
10 Shu = 1 Li 粒	10 Ko = 1 SHENG 升
10 Li = 1 Kuo 撮 棵	10 Sheng = 1 Tou 斗
10 Kuo = 1 Su 粟	10 Tou = 1 SHIH 石

NOTES.

NOTE 1.—Rev. P. HOANG (1) states:—

The measures in common use for measuring grain are of three kinds:—

1st.—The Hu, 斛, which is half the Shih, 石, (or 5 Tou, 斗);

2nd.—The Tou, 斗, a tenth of the Shih, 石;

3rd.—The Shêng, 升, a hundredth of the Shih, 石.

The Chih-hu, 制斛, or Ts'ao-hu, 漕斛, is the legal measure of capacity by which the Tribute Rice, 漕米, is measured. By this measure one Shih, 石, equals about 103.1 litres [6,292 cubic inches]. That this measure may be uniform throughout the Empire, the Board of Revenue, 戶部, keeps a Hu made of iron, and sends a corresponding specimen to each official, 漕督 and 糧道, in charge of the Tribute Rice. The District Magistrates send their wooden Hu to the 糧道, who compare them with their iron Hu, seal them and then return them. In the 28th year of Kien-lung (1763) an attempt was made by a Censor to secure uniformity in the measures of capacity, but the innovation was reported against by the Imperial Council.

NOTE 2.—Rev. P. GAIN (11) gives an interesting note of the price of various cereals in February, 1889, at Hsü-chou in Sui-ning-fu, Kiangsu :—

1 shih of rice	of 280 catties, value 7,600 cash.
1 „ wheat	„ 260 „ „ 4,500 „
1 „ barley	„ 150 „ „ 3,200 „
1 „ rye	„ 120 „ „ 2,600 „
1 „ maize	„ 200 „ „ 4,000 „
1 „ sorghum	„ 220 „ „ 3,800 „
1 „ beans	„ 250 „ „ 3,800 „
1 „ petits pois	„ 290 „ „ 4,000 „
1 „ yellow peas	„ 240 „ „ 4,600 „
1 „ green peas	„ 260 „ „ 4,200 „
1 „ black peas	„ 250 „ „ 4,000 „
1 „ sesamum seed	„ 140 „ „ 5,200 „
1 „ colza	„ 180 „ „ 3,800 „
1 „ melon-seeds	„ 150 „ „ 7,000 „
1 „ ground-nuts	„ 100 „ „ 220 „
1 „ taro	„ 100 „ „ 350 „

NOTE 3.—Dr. S. P. BARCHET (16) states :—

We find considerable difference in the peck of the city and the peck used up-country. As a rule, the peck increases in size in large shops where business is done for ready cash, and decreases where the credit system prevails.

NOTE 4.—Rev. C. BONE (19) states :—

The Tou, 斗, of rice is 6.25 catties. In some cases, however, grain-selling guilds use a tou of 10 or 13 and even 14 catties.

NOTE 5.—*Note on Pakhoi Tou.*

I have made no attempt to reconcile discrepancies. As to the Pakhoi Tou, I may say that I measured the tou in common use, and weighed on foreign scales its contents in rice.—H. B. M.

Foot 尺

PLACE.			Authority.	TAILOR'S FOOT		CARPENTER'S FOOT.		OTHER FEET.		
Provinces.	Prefecture.	Town.		39.37 = 1 Inches Mètre		Inches.	Mètre.	Use.	Inches	Mètre
...	...	...	...	...	...	...	...	British Treaty	14.10	0.358
...	...	...	...	...	...	...	...	French "	13.98	0.355
Shêng-king	Fêng-tien	Newchwang	29	...	...	...	...	General	13.50	0.343
Shantung	Lin-ch'ing	Chou	4	...	...	12.55	0.319	Bricks	11.15	0.283
								Land	12.20	0.311
								Farmer's...	13.95	0.354
								Cloth	23.75	0.603
	Chi-nan	Fu	5	13.20	0.335	13.50	0.343	Land	14.95	0.380
		Lo-an	5	...	...	...	...	Cloth	21.40	0.544
Shansi	Lu-an	Fu	20*	...	...	...	...	Land	14.95	0.380
Shensi	Han-chung	Fu	22	13.95	0.354	...	...		...	...
Kansu	Liang-chou	Fu	6	...	...	12.60	0.320	Cloth	14.55	0.370
	Lan-chou	Fu	8, 22	14.35	0.365	13.05	0.332	Silk—shorter than Carpenter's.	...	...
Honan	Nan-yang	Fu	9	...	...	13.00	0.330	General	14.50	0.369
								Official	13.75	0.350
								"Native" ±	10.95	0.278
Anhui	Liu-an	Chou	10	14.15	0.360	12.75	0.324	Silk	8.25	0.210
		Huo-shan	10	...	...	13.30	0.338	Official	13.55	0.344
	Ying-chou	Huo-ch'iu	10	13.90	0.353	13.25	0.337	Market	13.90	0.353
	Ning-kuo	Fu	12	...	...	13.25	0.337		...	...
	Sai-chou	Wu-ho	12	...	...	13.50	0.343		...	...

* Note 1.

Foot 尺

PLACE.			Authority.	TAILOR'S FOOT		CARPENTER'S FOOT.		OTHER FEET.		
Province.	Prefecture.	Town.		39.37 Inches	1 Mètre	Inches.	Mètre.	Use.	Inches	Mètre
Kiangsu	...	...	1	...	...	...	...	Land*	...	12.10 0.307
	Kiang-ning (Nanking) ...	{ 1, 12 17 }	13.75	0.350	{ 12.60 12.50 }	0.320 0.318	{ Satin weaver's Timber }	{ 14.05 13.82 13.50 }	{ 0.357 0.351 0.343 }	
	Chin-kiang	Fu ...	1, 12	13.45	0.342	12.60	0.320	Timber	...	13.45 0.342
		Tan-yang ...	12	{ 14.00 13.75 }	{ 0.356 0.350 }	{ 12.40 12.40 }	0.315		...	...
	Soochow	Fu ...	1	...	...	10.85	0.276	{ Official Timber }	...	{ 13.40 13.35 } 0.341 0.340
		Chang-shou	1	...	...	...	...	Official	...	13.30 0.351
	Tai-tsang	Teung-ming	1	...	...	...	...	Land	...	13.55 0.344
	Hsu-chow	Sui-ning ...	11	13.75	0.350	13.25	0.337	{ Land Cloth }	...	{ 14.00 19.95 } 0.356 0.507
								Land	...	13.80 0.338
	Sung-kiang	Fu ...	1	...	...	...	...	"	...	13.95 0.354
		Shanghai ...	{ 1, 3 12, 13 }	...	...	11.10	0.282	{ " † " † Timber Official }	...	{ 13.20 12.40 13.25 14.00 } 0.335 0.315 0.336 0.356
Chekiang	Ningpo	Fu ...	15, 16	{ 14.10 13.50 }	{ 0.358 0.343 }	{ 10.95 10.95 }	0.278	{ Land Family ‡ }	...	{ 12.25 15.50 } 0.311 0.394
	Wen-chow	Fu ...	13	14.00	0.356	11.00	0.279	...	...	...
Fukien	Foochow	Fu ...	21§	...	...	...	...	...	...	...
Taiwan	Tai-nan	Takow	26	14.50	0.368	9.83	0.237	Cloth	...	11.62 0.295

* Official.

† See Table of Mow.

‡ Note 2.

§ Note 3.

Foot 尺

PLACE.			Authority.	TAILOR'S FOOT		CARPENTER'S FOOT.		OTHER FEET.		
Province	Prefecture.	Town.		29.57 Inches	= 1 Mètre	Inches.	Mètre.	Use.	Inches	Mètre
Kwangtung	Ch'ao-chon	Swatow ...	23, 24	...	...	{ 11.50 12.00	0.292 0.305	{ Cloth (Shops) Cloth (Family) General ...	12.69 13.00 14.87 15.00	0.322 0.330 0.378 0.381
	Kwang-chou	Canton ...	2, 19	{ 14.80 14.75	{ 0.376 0.375	14.10 14.00	0.358 0.356	{ Land ...	14.00	0.356
		Hsin-hui ...	19	14.80	0.376	13.67	0.347	General ...	14.10	0.358
	Lien-chou	Pakhoi ...	3	14.20	0.361	13.80	0.350	{ Land ... "Standard"	10.00 14.70	0.254 0.374
Kwangsi	Tai-p'ing	Lungchow ...	28	13.30	0.338	15.50	0.394	Land ...	10.50	0.267
Yunnan	Lin-an	Mêng-tsu ...	25	14.00	0.356	13.75	0.346	{ Cloth† ... Stone- mason's† Land† ...	14.25 13.60 12.10	0.359 0.342 0.305
		...	14	...	...	12.55	0.317	{ Cloth ... Land ...	20.75 11.85	0.527 0.301
Corea	...	...	14	...	...	12.55	0.317	{ Cloth ... Land ...	20.75 11.85	0.527 0.301

* Note 4.

† Note 5.

LENGTH TABLE.

10 Hsien 釐	= 1 Wei 微	10 Li 里	= 1 Fên 分
10 Wei	= 1 Hu 忽	10 Fên	= 1 Ts'un 寸 (inch).
10 Hu	= 1 Ssü 絲	10 Ts'un	= 1 Ch'ih 尺 (foot).
10 Ssü	= 1 Hao 毫	10 Ch'ih	= 1 Chang 丈
10 Hao	= 1 Li 厘	5 Ch'ih	= 1 Pu 步 or Kung 弓
1,800 Ch'ih = 360 Pu = 1 Li 里 (considered $\frac{1}{3}$ mile).			

N.B.—The length of 5 *Ch'ih* is called indifferently *Pu* (pace) or *Kung* (bow), but it seems more common to call the length a *Kung*, and the square of 5 *Ch'ih* a *Pu*.

The *Li* is theoretically 1,800 of the *land* foot, the length of which may be seen on reference to the Table of Area of the *Mow*. Practically it is usually one-tenth of an hour's march 塘, which will vary according to the nature of the ground.

NOTES.

NOTE 1.—Rev. P. M. POELL (20) states :—

The carpenter uses a foot of 9 inches, the tailor of 10 inches, and others of 15 inches. [These are proportions only.]

NOTE 2.—Dr. S. P. BARCHET (16) states :—

The “family” foot is used by families for buying cloth, etc., which they sell by the “tailor’s” foot, hence the “family” foot varies considerably in length.

NOTE 3.—Mr. E. H. PARKER (21) states of Foochow :—

The tailor’s foot 裁尺 is 20 per cent larger than the cloth foot 店尺 or builder’s foot 木尺. The official *Kung* 弓 of land is in length 5.6 of the latter. The other calculations can be made by any one.

NOTE 4.—Note on *Pakhoi* foot :

The “standard” foot appears to be used only in making flooring-tiles, which are exactly a “standard” *Ch'ih* square. The tailor’s *Ch'ih* is called “nine-seven” 九七, and the carpenters’ *Ch'ih* “nine-five” 九五, being respectively $\frac{97}{100}$ and $\frac{95}{100}$ of the “standard” *Ch'ih*.—H.B.M.

NOTE 5.—Mr. HAPPER (25) states respecting *Mêngtzü* :—

Peddlers in the country are said to carry several foot-rules with them, and when offering cloth for sale, give the prices according to the measurement of each foot.

Mow 畝

Place.			Authority.	Length of Kung or Fu.		Number of Fu. to Mow.	Area of Mow.	
Province.	Prefecture.	Town.		English inches.	Mètres.		English Square Feet.	Square Mètres.
Shantung	Fêng-tien ...	Newchwang ...	29	67.50	1.715	240	7,594	705.9
	Lin-ch'ing ...	Chou ...	4	61.10	1.552	240	6,320	578.1
						360	9,480	867.1
						480	12,640	1,156.2
						240	9,327	866.4
Chi-nan ...	Fu ...	5	73.92	1.877	360	13,991	1,299.6	
					720	27,982	2,599.2	
Honan	Lo-an ...	...	5	73.92	1.877	840	32,634	3,032.4
	Liang-chou ...	Fu ...	6	63.00	1.600	240	6,615	614.4
	Nan-yang ...	Fu ...	9	68.75	1.746	240	7,877	731.6
Kiangsu	Ju-ning ...	Fu ...	9	99.00	2.515	240	16,820	1,518.0
	Ying-chou ...	Huo-ch'iu §	10	69.50	1.765	240	8,050	745.2
	Kiang-ning ...	(Nanking)	17	62.50	1.587	240	6,510	604.5
	Tai-tsang ...	Tsung-ming **	1	67.70	1.720	240	7,643	710.0
	Hsü-chou ...	Sui-ning ...	11	70.10	1.780	240	8,190	760.4
Chekiang	Sung-kiang ...	Fu ...	1	66.50	1.690	240	7,430	690.3
			1	69.70	1.770	240	8,094	751.9
			1, 13	60.50	1.537	240	6,105	567.2
			1, 2	66.00	1.676	240	7,260	674.5
	Shanghai ...	...	2, 3, 18	62.00	1.575	240	6,600	613.1
Ningpo ...	Fu ...	13	70.50	1.790	240	8,284	767.0	
		15	61.25	1.556	240	6,252	581.0	
		16	60.50	1.537	240	6,105	567.2	
Wên-chow ...	Fu ...	18	55.00	1.397	240	5,042	468.4	

*Note 1. † Note 2. ‡ Kung of 7.2 chih.

§ Note 3.

|| Note 4.

** Note 5.

Mow 畝

PLACE.			Authority.	LENGTH OF KUNG OR PU.		Number of Pu to Mow.	AREA OF MOW.	
Province.	Prefecture.	Town.		English inches.	Mètres.		English Square Feet.	Square Mètres.
Fukien	Ch'uan-chou...	Amoy ...	2	74.00	1,880	240	9,188	848.
Kwangtung	Ch'ao-chou ...	Swatow ...	23	57.50	1,460	240	5,510	511.
	Kwang-chou...	Canton ...	† 19	70.00	1,780	240	8,167	761.
	Lien-chou ...	Pakhoi ...	3	50.00	1,270	240	4,167	387.
Kwangsi	T'ai-p'ing ...	Lungchow ...	28	52.50	1,335	240	4,594	427.
Yunnan	Lin-an ...	Méngtsü ‡	25	60.05	1,525	240	6,000	558.
Corea	...	Fusan ... §	14	71.20	1,808	240	8,449	784.3

* Note 6.

† Note 7.

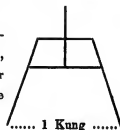
‡ Note 8.

§ Note 9.

AREA TABLE.

10 Hsien 鎰 = 1 Wei 微	10 Hao=1 Li 厘 (2.4 Pu).
10 Wei = 1 Hu 忽	10 Li =1 Fên 分 (24 Pu).
10 Hu = 1 Ssü 絲	10 Fên=1 Mow 畝 (240 Pu).
10 Ssü = { 1 Hao 毫 } (0.24 Pu 步)	100 Mow=1 Ch'ing 頃.

The common instrument for measuring land is of this shape and proportion, measuring 5 local *ch'ih* = 1 *kung* or 1 *pu*; 240 square *pu* legally make 1 *mow*.



NOTES.

NOTE 1.—Rev. GILBERT REID (5) states:—

There are three kinds of *mow*. One consists of 240 square local *pu*, another of 360 square local *pu*, and the third of 720 square local *pu*. The *mow* seems to vary somewhat according to the soil. For example, outside of the South suburb gate of Chi-nan-fu the small *mow* is used, outside the West the next larger, and outside the East the largest. The smallest is the official standard.

[N.B.—The Rev. G. REID gives the *pu* at 73.92 inches. It would be worth inquiring if the *pu* at Chi-nan-fu is not more correctly 62.81 inches English.—H.B.M.]

NOTE 2.—Mgr. HAMER (6) states:—

Ici [Lan-chou, Kansu] pour les terres on ne compte pas par *mou* mais par *teou* 斗; personne ne sait dire au juste la mesure d'un *teou*; cela dépend des terres et des endroits. Une telle terre est vendue pour autant, une autre pour autant de *teou*. Il me semble qu'un *teou* équivale à $2\frac{1}{2}$ *mou*.

NOTE 3.—A priest at Liu-an, Anhui (10) states:—

Ici le peuple ne connaît pas le nom *mow*, on compte la grandeur des terres par le nombre de *tan* qu'on paye de *teou* [rent] et on dit, "Je cultive 5, 6, etc., *tan* de terre."

NOTE 4.—Rev. E. T. WILLIAMS (17) states as regards Nanking:—

After sending to the Hien six or eight times I have finally obtained a complete table:—

TABLE OF LINEAR MEASURE.	{	10 Fān (分)	= 1 Ts'un (寸) or Inch
		10 Ts'un	= 1 Ch'ih (尺) or Foot
		5 Ch'ih	= 1 Pu (步) or Pace
		2 Pu	= 1 Chang (丈)
		180 Chang	= 1 Li (里)
		200 Li	= 1 Tu (度)
		360 Tu	= 1 Cheu-Tein (周天)

The foot in this table is what is called the Kiu-cheh-ch'ih (九折尺), or Carpenter's Foot, nine-tenths of the ordinary foot. It does not measure exactly this according to my measurement as reported in the paper sent you. I ought to say, however, that I have had no access to any official standard, and have had to measure a number of those in actual use by carpenters and merchants, but as both the carpenter's rules measured by me were a little more than nine-tenths of the longest Ts'ai-ch'ih measured, I considered they could not be far wrong.

According to this, the foot in the above table is twelve and one-half inches in length (English). This will make the Pu, or Pace, equal to 62.5 Inches (English) and the Li equal to 1,875 English Feet.

TABLE OF AREAS.	{	100 Square Ts'un (𠂇)	= 1 Square Ch'ih (尺)
		25 „ Ch'ih	= 1 „ Pu (步)
		4 „ Pu	= 1 „ Chang (丈)
		6 „ Chang	= 1 Fān (分)
		10 Fān	= 1 Mow (畝)
		100 Mow	= 1 Ch'ing (頃)
		540 Mow	= 1 Square Li (里)

It will be seen by this that 240 Square Pu make one Mow. The Ch'ih is of same length as in the table of length, i.e., 12.5 Inches (English), so that a Square Pu will equal 27.126 Square Feet (English) and a Mow 723.36 Square Yards (English).

NOTE 5.—Rev. P. HOANG (1) states :—

The legal measure *kung* 弓 containing 5 營造 *ch'ih* equals 1.537 mètres (60½ English inches). This measure was a few years ago [prior to 1882] legally prescribed for the measurement of land formed thereafter by alluvial deposit; while for old land the use of the measure traditionally employed in each district is permitted. The traditional measure, judicially admitted in the district of Shanghai, equals 1.676 mètres (66 inches). [*N.B.*—This gives 1 acre = 6 *mow* exactly]. This measure was a few years ago sent by the Shanghai Taotai to the British Consul. In the country two other measures are in use, one = 1.690 mètres, one = 1.770 mètres.

In Tsung-ming 崇明, where measurement is frequent on account of continual accretion by alluvial deposit, the traditional *kung* equals 1.720 mètres. During the Ming dynasty a stone of this dimension was erected in front of the Magistrate's Yamèn, for standard comparison. There the common instrument of measurement is a thin strip of bamboo, called *Chang-po* 丈帛, measuring 10 *kung* = 17.2 mètres.

NOTE 6.—Rev. J. C. GIBSON (23) states respecting Swatow:—

The "pace" is not in practical use here and its length is not known. Theoretically it should equal about 5 feet, the pace being measured not between right and left foot when stepping, but between successive positions of either foot, which is twice the distance.

The *Li* is often used, but its length is very indefinite. It is used here (also in the Amoy region and Formosa, and in the Hak-ka country) chiefly as a fractional part (one-tenth) of the league (鋪), and the length of the latter varies greatly. It represents about an hour's moderate walking on level ground. If the "pace" be taken at 5 feet, then 360 paces

to the *Li* would give 1,800 feet as its length, which would be a fair average here.

No one seems to know the area of the Mow, and it is said to vary not only in different districts, but to be variously reckoned on fields contiguous to each other.

The Mow is divided into tenths (分). Land is commonly described by its average yield reckoned in Piculs (担) of ripe grain unshelled, 5 Piculs to the Mow being a fair yield in good seasons. This is the standard for rice-fields. These give two crops annually, the winter being the heavier (5 Piculs to the Mow) and the summer lighter (4 Piculs to the Mow). For the winter crop, a peck and a half per Mow is allowed for seed, and each Mow is supposed to contain 120 plants. For the summer crop, the allowance of seed is 3 pecks per Mow. For "dry" ground (園) the usual reckoning is in terms of the number of plants reckoned in thousands, of potatoes or sugar-cane which it can carry. [*N.B.*—Mr. GIBSON gives no length for the pace, and I base the area of the Mow on his length for the carpenter's (and land) foot.—H.B.M.]

NOTE 7.—Rev. C. BONE (19) states regarding Canton:—

A *pu* 步 is 2 Chinese feet, but in some cases it is 2.2 Chinese feet. [*N.B.*—I have disregarded this statement, and in estimating the area of the mow have taken Mr. BONE's further statement that the land foot is 14 English inches.—H.B.M.]

NOTE 8.—Mr. A. P. HAPPER, Jr. (25) states respecting Mêngtzu:—

The *Mu* (畝) is not known here. This is stated on good authority. When land is transferred, it is paced off, or delimited by giving the boundaries. The value is calculated on the rent it will bring, or on the quantity of grain it will

yield per year. The pace is said to be the ordinary step of a man walking at an ordinary gait. The *kung* 弓 lent me measured 1.525 mètres.

NOTE 9.—Mr. J. H. HUNT (14) states:—

The *mow* (*irang* 畝) is the area on which taxes are paid [in Corea]. The people do not buy and sell land by this measure. The price of a field or plot of ground is regulated by the time occupied in ploughing it, or by its average yield of grain per year.

NOTE 10.—Mr. MAK SZE CHE (26) states respecting Takow:—

Natives speak of the *kap* (甲), not the *mow* (畝) of land; the latter measurement is not known.

With regard to Shanghai weights and measures, the following letter from the Chairman of the General Chamber of Commerce to H.B.M. Consul-General, conveys all the information of which the Chamber could dispose:—

SHANGHAI GENERAL CHAMBER OF COMMERCE,

SHANGHAI, 31st July 1885.

To P. J. HUGHES, Esq.,

H.B.M. Consul-General, Shanghai.

SIR,

I have the honour to acknowledge the receipt of your letter of 28th July, asking for information as to the denominations and equivalents of the weights and measures in use at this Port, for communication to the Board of Trade, and in reply I have the pleasure to hand you the following particulars:—

The subject is dealt with at length in Dr. S. WELLS WILLIAMS' *Commercial Guide*, chapter 5, sections 3 to 6, but as only a small number of the weights and measures indicated are in use between foreigners and natives, it is perhaps unnecessary to give details of those which are confined to native use alone.

Weights.—The weights in use for general purposes are
the Tael = $1\frac{1}{2}$ oz. Av.,
the Catty = $1\frac{1}{2}$ lb. „ = 16 Taels,
the Picul = $133\frac{1}{3}$ „ „ = 100 Catties,

the former being used for precious metals and the two latter for the ordinary purposes of market stuff and produce.

The usual instrument for market use is the Steelyard, which will weigh up to a picul, while larger quantities are usually treated by Beam or Fairbank scales of foreign manufacture.

Measure of Length.—The measure of length is the “Chih,” which is equal to 14.1 inches English.

Measure of Distance.—The measure of distance is the “Li,” which is equal to 360 paces or 1894.12 feet English.

Land Measure.—Land is generally measured by the “Man”—26.73 square Poles English, the subdivisions being decimals: 100 mau = 16.7 acres.

There does not appear to be any reliable standard for either weights or measures, the initial element in both cases being a grain of millet-seed, the equivalent of the English Barleycorn, while there is also a difference in both weights and measures varying with the article to which they are applied. Thus in Shanghai the ordinary Measures of Capacity are the Koh = 6.103 litres

the Shing = 1.031 „

the Tau = 10.31 „

which are commonly used for retailing market commodities such as rice, peas and grain generally, but the smaller measures are usually made of bamboo joints, and vary in size according to what the retailer considers will give him a fair profit.

The “Tau” is made of wood like an inverted pyramid with the top cut off, and holds generally $6\frac{1}{2}$ catties.

For retailing oil and spirits there are measures which contain 1, 2, 4 and 8 Taels weight respectively, and indeed almost all articles are sold by weight, whether solids or liquids, and there does not appear to be any genuine standard of capacity.

It may further be noted that both weights and measures differ in different provinces, though as far as the open ports are concerned the proper equivalents were arranged by the Treaties, but even in this the French and English do not exactly agree, though they do so nearly enough for practical purposes.

As regards measures of length again the "Chih," or Chinese foot, varies with the different trades, and in Shanghai we have the following :—

Eng. Inches & Decimals.

Junk-builders' chih	=	15·769 to 15·69
Custom House "		14·098
Tailors' "		14·05 to 13·85
Board of Revenue "		13·181
Artisans' "		12·569
Carpenters' "		11·14
Masons' "		11·08 to 10·9

while they differ again at most of the open Ports.

Trusting that the above information may be of service to you,

I have the honour to be,

etc., etc.,

(Signed) J. J. KESWICK,
Chairman.

APPENDIX.

[EXTRACTS FROM "NORTH-CHINA HERALD" FOR 1889.]

Remittances to Peking from Shantung.

"Chang Yao reports the transmission of the following sums on various accounts to Peking: the sixth instalment of the Peking subsidy, Tls. 50,000, forwarded to the Board of Revenue by the Financial Commissioner: Tls. 6,250 transmitted by the Salt Commissioner to the Board of Revenue as interest on funds lent to the province, together with Tls. 156.25 for difference in weight and Tls. 50 for portorage; Tls. 6,250 to the Imperial Household for interest on borrowed capital, with similar allowances for portorage and loss by exchange; Tls. 20,000 sent by the Grain Intendant as the second instalment towards defraying the outlay on frontier defence; and Tls. 20,000 from the four-tenths of the receipts of the foreign Customs' duties at Chefoo as a contribution to the Tientsin Arsenal."—*Vol. xlii., p. 146.*

The Currency Question in Kirin: Excessive Issue of Paper Money.

"January 17th.—The Governor of Kirin states that the currency system of the town of Kirin is carried on on a most pernicious system, and as a remedy for the great inconvenience and suffering which it entails upon the people, he suggests that a portion of the subsidy which the province receives yearly from Peking should in future be remitted in copper cash. Cash, he states, is the proper standard for the monetary requirements of the people, and paper money is only to be resorted to when it proves insufficient. If the latter could be made to circulate freely and the price of commodities, whether paid in cash or paper, could be equalised, it would prove a real convenience for the people, to which no objection could be raised, as in the other provinces where paper money is used to supplement the ordinary currency. In Kirin, however, the case is quite different. Here the notes no longer represent a cash value, and, being inconvertible, have given rise to

abuses greater than any ever resulting from the financial expedients of the Sung dynasty. The commercial transactions of the town are all based on a gigantic system of credit, against which prohibitions have been issued from time to time without effect. The notes of the system lay in its convenience for use in the market where money was required to pass rapidly from hand to hand, and in course of time its use was extended until it assumed its present dimensions and afforded facilities to dishonest merchants for fraudulent practices and overtrading. The notes were put on the market without any regard to the capital possessed by the establishment issuing them, and people seeing that they could buy *sycee* or goods with mere paper, naturally preferred to hide away their cash, and make gain without employing money at all. Merchants who came to the city to trade, observing the high price of silver and articles of commerce, feared that they would lose heavily on any goods purchased there, and took their cash to other places where they could invest it better. The consequence was that there is an unusual scarcity of cash in Kirin, and that prices have gone up to an enormous height. The soldiers and officials suffered more than any other part of the population. By an old regulation a part of their salary was paid out of the local revenue, and to begin with was issued at a discount of twenty per cent. The chief source of revenue is a tax upon distilleries paid in inconvertible paper, of which it took considerably over four *tiao* to make a Tael, but which was issued to the officials and soldiers at the rate of three *tiao* to the Tael. But this did not represent the total loss. The other cities in the province would not accept the inconvertible paper of Kirin, therefore the soldier was obliged, if he wished to return home, to exchange his paper money for silver at the current high market rates. When he reached home he had to convert his silver into cash, and as the price of silver was lower than in Kirin he again sustained a heavy loss. The country people who brought produce into town found themselves unable to sell it unless they took the price in paper money, and as this was utterly useless in the country they were obliged to exchange it at a ruinous loss before returning. Vendors of firewood, and other poor creatures who had carried heavy burdens from a long distance into the city, would often want a few cash to buy food to appease their hunger, and would find themselves unable to obtain it, to such a pitch had the abuses of the currency system attained. After a consultation with the local, civil and military authorities, Memorialist drew up a set of regulations for reducing the price of silver, and placing the copper and paper money on a uniform basis, and took steps to have them enforced among the mercantile community. During a specified period, when outstanding notes were presented for payment, at least 20 per cent. of the

amount was to be given in cash, and after the third moon of next year, the further issue of inconvertible paper was to be entirely discontinued. It is feared, however, that in making such a radical change, a difficulty might at first be experienced in obtaining cash to meet the requirements of trade. The late Governor proposed to open a local mint for the coinage of cash, but the difficulty of procuring copper renders this scheme unsuited to the exigencies of the case. Kirin draws from the Board of Revenue in Peking quarterly subsidies for defence purposes, and half-yearly allowances for the maintenance of a drilled force in the province. It is suggested that of each of these payments, Tls. 10,000 should be issued in copper cash at an exchange of 3,000 cash to the Tael, and be forwarded in carts to Kirin along with the remittances in silver. Or if it is thought better, the Board might direct one of the provinces which coins copper cash and has communication by sea with Manchuria to forward a similar amount of cash by steamer to Newchwang, whence it could be sent overland to Kirin, where it might be used in the payment of salaries instead of a direct remittance from the Board.—*Referred to the consideration of the Board of Revenue.*—*ibid.*, p. 175.

*Coinage of Cash in Shensi stopped through want of
Foreign Copper.*

“February 21st.—About eighteen months ago steps were taken for the erection of a mint to coin copper cash in Shensi. Chên-nn is the only district in the province which produces copper, but the quality is so poor that for coinage purposes it can only be used in combination with the foreign metal, and supplies of the latter had to be procured from Shanghai. During the time that the mint has been working, eleven castings have been turned out, representing a total of 19,800 strings of cash. The supply of foreign copper is nearly exhausted, and the officers who were sent to Shanghai to make further purchases report that owing to the stoppage of the Japanese copper works and other causes the price of the article has so gone up as to place it out of their power to procure any more. Under these circumstances, and in view of the fact that the experiment of using the native copper alone has not proved a success, the Governor asks permission to be allowed to postpone further coinage operations until foreign copper can be procured at reasonable rates.”—*ibid.*, p. 311.

Currency and Public Works in China.

"Our readers will have noticed that some of the correspondents whose reports on the condition of the distressed districts we have published, have at times referred to the losses incurred in the exchange of silver for copper cash. Those who distributed relief after the Yellow River inundations, some two years ago, had similar experiences, and we suppose it would be the same anywhere in the empire where foreign commerce has not increased the working capital of bankers and merchants. The rise in the price of cash caused by the sale of the few thousand taels of sycee that have been sent to Shantung and Manchuria this year, may have partly arisen from the exactions of the money-changers, but we are inclined to think that it has been chiefly brought about by what we may call natural causes. Money-changers are seldom possessed of more than a few thousand taels of capital and very often they have only a few hundred. The influx into a district of a quantity of sycee which would have no effect on the money market of even a second or third rate open port, would very soon exhaust the resources of all the cash bankers in the inland districts. We are aware that in some places the native bankers have behaved very liberally in their dealings with the missionaries who have been distributing the relief funds, but where capital is very limited and business almost at a standstill, from the condition of the country, it could not be expected that the most generous conduct of bankers would have much effect on the market price of copper cash. But the probability is that the bankers were able to do very little to prevent losses in exchange from lack of means. Even if they bought sycee at prices considerably under those ruling in the other provinces, they have not the means of transporting it which would enable them to realise a profit, and it is evident that the supply of cash and the amount of sycee used in the districts we are referring to, are both limited. The writer of *Chinese Characteristics* very graphically described the other day the state of the currency, if we can apply this term to the wretched cash of the country, and the troubles which await all those who have to use it. We were all more or less acquainted with these evils, which we take to be about the most serious which injure China. The condition of the cash in use in all the provinces becomes almost periodically so bad that the *Peking Gazette* is stuffed with Memorials and Edicts on the subject, from which but little good results. The truth is, as we have said before, that there are too many people, of all ranks and degrees, throughout the empire, some of whom are enriched by, and others live upon, the badness of cash and the inequalities of sycee, for any great improvement in either to be attempted by the Govern-

ment. No doubt, some of the higher officials would be glad to see the evils abolished and even a coinage introduced, but reform in this direction, like other western improvements, must come slowly. It is a matter of regret that the mint which the Viceroy of Canton procured from England for the coinage of cash is not to be worked, but if His Excellency's change of plan is owing to the advance in the price of copper which took place last year and in 1887, we hope that the recent decline in the value of the metal may induce him to change his mind again.

"We suggested some time ago that the Viceroys and high officials in the afflicted provinces should employ the people in road-making, the repair of waterways and other public works. If these have been undertaken to any great extent they will be of great service to the country, but we confess that we are not sanguine of anything of consequence being done in these things. Yet nothing would, under the circumstances, be of greater service to the country and the people, for the latter would be provided with some means of subsistence while commerce and the movement of troops would be facilitated. Such improvements could not be objected to by the most conservative Chinese, for they would be in accordance with old ways and the patriotic spirit which is supposed to animate the policy of the Government. No doubt the rulers of China know perfectly well that they must meet the criticism of the outside world, which their predecessors neglected and despised. When, therefore, the country suffers, as unfortunately it has suffered, great distress in recent years, and foreigners are appealed to for aid, the Government should know that the amount of subscriptions from other countries will be greatly affected by the manner in which the officials have discharged their duties or are discharging them. We noticed not long ago that the *Spectator* questioned the wisdom of English people subscribing to the Lord Mayor's fund, and we have no doubt that its remarks on the subject have caused at least some people to withhold their money. Not only Heaven but men help those who help themselves; and if foreigners see that the Government of China does not take effectual steps to mitigate the evils from inundation or drought, much less practical sympathy will be shewn by them on the next recurrence of such disasters. And as a proof of the critical attitude of Englishmen to this country, to which we have referred, and which the Government must meet, we mention the fact that the news of the outbreak at Chinkiang had an immediate and considerable effect in diminishing the subscriptions to the Relief Fund. We commend to those who have the ear of the great officials, if any such foreigner there be, the advocacy of useful public works and currency reform."—*ibid.*, p. 399.

"The subject of Chinese currency demands not a brief paragraph, but a comprehensive essay, or rather a volume. Its chaotic eccentricities would drive any Occidental nation to madness in a single generation, or more probably such gigantic evils would speedily work their own cure. In speaking of the disregard of accuracy we have mentioned a few of the more prominent annoyances. A hundred cash are not a hundred, and a thousand cash are not a thousand, but some other and totally uncertain number, to be ascertained only by experience. In wide regions of the empire, one cash counts for two, that is, it does so in unumbers above twenty, so that when one hears that he is to be paid five hundred cash he understands that he will receive two hundred and fifty pieces, less the local abatement, which perpetually shifts in different places. There is a constant intermixture of small or spurious cash, leading to inevitable disputes between dealers in any commodity. At irregular intervals, the local magistrates become impressed with the evil of this debasement of the currency, and issue stern proclamations against it. This gives the swarm of underlings in the magistrate's *yamên* an opportunity to levy squeezes on all the cash shops in the district, and to make the transaction of all business more or less difficult. Prices at once rise, to meet the temporary necessity for pure cash. As soon as the paying ore in this vein is exhausted, and it is not worked to any extent, the bad cash return, but prices do not fall. Thus the irrepressible law by which the worse currency drives out the better, is never for an instant suspended. The condition of the cash becomes worse and worse, until, as in some parts of the province of Honan, everyone goes to market with two entirely distinct sets of cash, one of which is the ordinary mixture of good with bad, and the other is composed exclusively of counterfeit pieces. Certain articles are paid for with the spurious cash only. But in regard to other commodities this is matter of special bargain, and accordingly there is for these articles a double market price. That enormous losses must result from such a state of things, is to any westerner obvious at a glance, although the Chinese are so accustomed to inconveniences of this sort, that they seem almost unconscious of their existence, and the evils are felt only as the pressure of the atmosphere is felt. Chinese cash is emphatically 'filthy lucre.' It cannot be handled without contamination. The strings, of five hundred or a thousand (nominal) pieces, are exceedingly liable to break, which involves great trouble in re-counting and re-tying. There is no uniformity of weight in the current copper cash, but all is both bulky and heavy. Cash to the value of a Mexican dollar weigh not less than eight pounds avoirdupois. A few hundred cash are all that anyone can carry about in the little bags which are suspended for

this purpose from the girdle. If it is desired to use a larger sum than a few strings, the transportation becomes a serious matter. The losses on transactions in ingots of sycee are always great, and the person who uses them is inevitably cheated both in buying and in selling. If he employs the bills of cash-shops, the difficulty is not greatly relieved, since those of one region are either wholly uncurrent in another region not far away, or will be taken only at a heavy discount, while the person who at last takes them to be redeemed, has in prospect a certain battle with the harpies of the shop by which the bills were issued, as to the quality of the cash which is to be paid for them. Under these grave disabilities the wonder is that the Chinese are able to do any business at all; and yet, as we daily perceive, they are so accustomed to these annoyances, that their burden appears scarcely felt, and the only serious complaint on this score comes from foreigners."—*ibid.*, p. 411.

Resistance to Change of Currency in Kirin.

26th June.—"A memorial from the high authorities of Kirin states that it has long been the practice in the provincial capital to make use of irredeemable bank notes instead of money. The custom having proved to be injurious to the Government, the army and the people alike, the memorialists obtained permission from the Emperor to put a stop to it altogether. On the promulgation of a notice to this effect unbounded joy was manifested by the public. At the same time six months' warning was given to those concerned, and arrangements were made for carrying out the change gradually. The utmost consideration was thus shown to the merchants, who, notwithstanding, in their greed and covetousness swore an oath not to obey. As a first step they bribed certain unworthy gentlemen, who drew up for them a general petition full of bad arguments and concealed threats; but the memorialists refused to be influenced by this. Finally one house, the Jui-shang Bank, has now suddenly closed its doors for no cause. Unavoidable bankruptcy is a common enough occurrence and would call for no special remark. But in the present instance the pretended insolvents had only four days previously received twelve thousand taels on account of one Government department and ten thousand taels on account of another. Their action can therefore only be regarded as a deliberate swindle conceived with the object of putting pressure on the authorities. The enormity of the offence is moreover aggravated by the fact that they have long been the busiest of traders and have made immense profits at the expense

of other people. The memorialists have ordered the prefect to imprison both the proprietors of the bank and their assistants, and to take measures to recover the moneys owed by them. Even if they discharge all their liabilities in full, they must still be punished severely, in order that others may be warned by their example. It is further requested that one of the officers from whom they received the Government money may also be made a defendant in the case, in order that it may be discovered by a rigorous investigation whether he acted in collusion with them or not.—*Approved.*—*Vol. xliii., p. 50.*

Paper and Silver Currency.

"The use of seals had extended much in China about two centuries after Christ, and this led gradually to stamping silk and skin for various purposes. Just at that time the manufacture of paper was introduced from the West and it was found to be an article capable of many common uses. This led the Taoists, for example, to multiply charms rapidly by stamping them on paper to sell to the superstitious, either to hang on their doors or to carry with them when travelling. Commercial accounts were written on paper for convenience, and merchants and shopkeepers provided themselves with seals for stamping. They came into the habit also of stamping the paper before or after they wrote their figures upon it. This was the state of things when the establishment of the Caliphate on the Euphrates gave an impetus to Eastern trade. The Chinese in the eighth and ninth centuries made much more silk than before for foreign countries. The spread of the silk manufacture in Western regions did not put an end to the demand for the silk goods of China or for the unwoven silk. Neither Europe nor Western Asia could manufacture enough of their own silk to meet the demands of the market. The historian Ronsardson says of this period that the silk of China was purchased in Shensi, the westernmost province of that empire, and conveyed thence by caravan in a march of eighty or a hundred days to the banks of the Oxus, where it was embarked and carried down the stream of that river to the Caspian. After a dangerous voyage across that sea and ascending the river Cyrus as far as it is navigable, it was conducted by a short land carriage of five days to the river Phasis, which falls into the Black Sea. Thence it was taken by ship to Constantinople. While such was the activity of trade by land there would naturally be a corresponding expansion

of seaborne traffic from the seaports of China to India and farther west. The three centuries of the Tang dynasty at the same time gave opportunity to home commerce to grow in proportion. Trade flourishes when an empire is at peace. It was these circumstances combined which led to the invention of paper money in the Tang dynasty, and it was to the Chinese merchants and statesmen, particularly of the ninth century, that the credit is due in the first instance of employing paper money in the form of drafts payable at certain cities.

"Those who wish to master this subject will find much to interest them in VISSERINO's work, which received the Julien prize a few years ago. During the present year the Peking Oriental Society has published a paper (taken chiefly from a work by Wang-lin, published in 1831) by the lamented Japanese Minister to China, Shioda Saburo, on the same subject. This paper is of very great value. It brings out clearly the point that silver was not employed as money before the Tang dynasty, and that it was then introduced. Reference is here made to the work called *Ji Chilu* by Ku Yen-wu,* who died two centuries ago, where it is said that before the Tang dynasty copper cash was the medium of exchange between Government and people, and silver had never come into use. At that time silver was already introduced in South China, meaning by that term Canton and Kuangsi. It is a curious fact that at about A.D. 500, according to Chinese history as examined by Ku Yen-wu, there were in regard to money circulation three belts of country. In the extreme south, gold and silver were in use, Canton being the centre of trade. In middle China, all along the Yangtse into Szechuan, copper cash were used everywhere as the medium of exchange. All this belt of territory, with Canton, Kuangsi and Tongking, was then ruled from Nanking as the centre. In the North, which was under Tartar administration, copper cash and grain were employed as a double medium of exchange. The effect of Tartar control was to favour barter and keep back the onward advance of monetary conveniences. Even now soldiers are paid in grain when they are upon the old régime, but the new drilled troops are paid in silver. It is noticeable here that silver began to be a currency in South China first and at a time when China sent her prefects regularly to rule in Cochin-Chinese and Cambodian cities. Gold in ancient China was much used on account of its great abundance. But silver began to enter China because it is produced abundantly in Burma and because it was a circulating medium in India and farther west. The silver which circulated by weight in Canton in A.D. 500 would be partly

* See Wang Ziu's work 鈔幣芻言 *Ch'au-pi-chu-yen*.

Burmese and partly what Arabian merchants and others brought from distant ports. The Arabian trade would certainly have a share in the introduction of silver by weight into the commerce of China in its southern provinces. We find many proofs of the activity of the Arab merchants from the Han dynasty downwards. This is probably another instance of it. The Mei-ling mountains, on the north of Canton province, at that time separated the belt of country which traded by weight from the belt of country which traded with the help only of copper coins, and this was noticed by the celebrated author Han Wên-kung in a memorial he sent to the Emperor about A.D. 800. Yuen Chen, another great statesman, mentioned at about the same time that salt and pieces of silk were used as money in Szechuan. Cinnabar and quicksilver, he added, were used as money in Kuangsi, as also pieces of cloth and silk. At that time any valuable article which had a known price in the market could be bartered like coins elsewhere. It was in this way that silver came into extensive use. It was of a fixed value according to weight, and the silver mines of Burma made it very convenient when the influence of the Chinese Government extended to that region. Another step in the use of silver was taken when in A.D. 1035 it was commanded that the provinces of the empire should not in future be expected to pay taxes in the same form. Most portions of the empire would pay in copper cash. Fukien, Canton, and Kuangsi might send silver, Kiangsu and Chêkiang could contribute silk. This is the first instance of the payment of taxes in silver being recognised in an edict, and it was 854 years ago. Since that time the influence of silver has been increasing to the present day, for during this century the change of grain to silver in the contributions of the people to the expense of the Government has in many localities been made for the first time. A change back again from silver to grain or from silver to copper is never known.

"For eight centuries the use of silver by weighing it, as a circulating medium, has been increasing in China, and it has known no check but the introduction of the dollar. The dollar, however, has only perhaps represented in the amount of its circulation a contemporaneous growth of new trade. The sycee in use as money has certainly not diminished in quantity on account of the large import of Mexican dollars which China now requires, for these dollars, when cheap, are often melted down into sycee. A thousand years ago the people in Central China kept their accounts in copper cash, which at that time would in the market procure a much larger amount of clothing and provisions than now, and the inconvenience of copper, on account of its relative weight, would not be so much felt. They did not then change cash into silver

in totalling up their daily and annual entries, because the change from copper to silver as a standard of value had not yet been made. Arabian trade brought to China the use of silver by weight as European trade at a later period brought the dollar. In both cases the flow of silver has been traceable from south to north in successive zones of country. The convenience of a paper currency made itself felt much sooner in China than in any other country because of the early use of engraved seals, the immense internal trade, and the commercial instinct of the people."—*ibid.*, p. 139.

Want of Control over the Circulating Medium.

"About sixty years ago a student of Chinese history in Soochow made some deep researches into the question of the currency. The currency was then becoming more and more out of the reach of Government control. Foreign trade was increasing. The Government had for nearly two centuries left silver to work its own way as money paid by weight, and received it in payment of taxes from each *arrondissement*. Only the copper cash were issued by the Government. For silver there was no mint and never had been but once, and that for a short time, yet this metal had grown to be one of the most important elements in domestic as well as foreign trade. It was the same with paper. Paper notes representing money were issued by private capitalists in all large cities, and the Government had no interest in them. Their success as a circulating representative of silver was entirely at the risk of the native bank. Silver and paper both represented money in all the large transactions of trade. The small market negotiations in copper cash which belong to the daily life of the people, and which, while as transactions they are counted by millions, are always small in bulk, were the only trading operations of which the Government issued the circulating medium. How strikingly different was this state of things from that which exists in the West, where gold, silver, copper, nickel, and stamped paper are all issued by the Governments as money. Our author knew nothing of this, of course, but he was still able to cast his eye over a wide range of financial facts. China had had a long history of financial experiments and a succession of prosperous and disappointing experiences. With the national annals before him, each dynasty having its special chapter on finance, it never struck him that China was, or could be, deficient in financial knowledge or unable to meet the new conditions of the time. He attempted to shew that a change in policy was required in finance, and the

conclusion he arrived at, and which he tried to prove by argument, was that a Government paper currency ought to be again issued and the use of silver prohibited. The people should attend to agriculture rather than to trade. This was their proper occupation, and would lead them to a spirit of contentment. The circulating medium of trade ought to be in the hands of the prince as a source of revenue.

"The reasons, he said, why the monarch cannot easily control the currency or derive revenue from it are fivefold. Coppersmiths melt coin because they wish to use the copper in making wash-basins, tea-kettles, and images of the gods. This is the first interference with the monarch's authority. In addition to this, lead and spelter are employed to make spurious coin in the furnaces of law-breakers aiming at a little profit. This is the second interference; and the third is the extending use of foreign dollars. (It is worthy of remark that through the whole of his book the author, writing in 1831, makes no allusion to opium; yet it is unquestionable that the spread of Spanish dollars first and American dollars afterwards was very much connected with the opium trade. At the same time he makes no allusion to the silk or the tea trade. His point is simply that it is a loss to the Chinese Government not to have the profit arising from the control of the currency. As to commercial questions he seems to have no information, nor did he seek any.) His fourth reason why the Government fails to derive benefit from the circulating medium is that the market price of silver is entirely in the hands of the merchants. He would like the Government to regulate the currency by authority—not knowing that it is disastrous and vain for official authority to attempt to modify prices. China has learned many lessons since the day when this author lived. The fifth cause of the feebleness of the Government in regard to the control of the money market is the fact that bank notes and bills of exchange are issued by private capitalists.

"Our author's advice to the Government was to make a law prohibiting the use of silver in money payments and at the same time restore the issue of Government bank notes which had been so long discontinued. In his opinion this was the only policy by which the five evils from which the Government suffered could be eradicated and the country made prosperous. In support of this view he appeals to the history of money in China. Ancient statesmen saw the propriety of drawing a revenue of cereal products from one locality, of textile fabrics from another, and of coined money from a third. They did not see the need of a large issue of coins, except occasionally, when floods and drought compelled the adoption of this expedient. Nor did finance minis-

ters in very early times limit money to silver or to copper. Pearls and jade, tortoise-shell and cowries, bundles of silk and grass-cloth, served as money in China's ancient markets. About B.C. 800 an old poem says: "A simple-looking lad, you were carrying cloth to exchange it for silk." The official master of the market, says the comment, stamped the cloth for use in barter, and it was two inches in width and 16 inches long. The author adduces this as classical authority for an issue of Government bank notes. But as the poem mentions merely barter, and the explanatory remark is that of an author of A.D. 200, how can we know whether the market officer stamped the cloth or not? It may have been a simple case of barter. Whatever is meant it would scarcely be by stamping, for this mode of giving official validity was hardly in use so early. Why, for example, do we find that the cash of the Ch'in dynasty, B.C. 220, were issued without any inscription upon them? Books tell us that the Han dynasty monarchs were the first to direct characters to be inscribed upon their coins. This practice commenced about B.C. 200 and was never afterwards neglected. He refers to another example—that of painted squares of white deer skin, which in the reign of Han Wu-ti were used as money. They were priced at four hundred thousand cash each, and were presented to the Emperor by the high nobility or by his relatives at the daily audiences or at high festivals, after which they could pass into circulation for the amount mentioned. At that time there was also a silver coinage, the silver being mixed with tin as an alloy, on account of the whiteness of that metal. This alloy of tin was doubtless intended to prevent all attempts at melting the imperial coins. The melter could only lose by the act, and if it was not worth his while he would not place the coins in his melting-pot. This seems to be a clear historical instance of silver coinage lasting for a very short time. Neither the silver coins of Han Wu-ti nor the painted squares of white deer skin remained long in use; and the high value assigned to the deer skin would suggest that it was something like the million pound bank note of Samuel Rogers, which he displayed in the chimney-piece of his breakfast parlour. It was more an object of admiration than of utility, in an age of luxury and gaudy show. As to the origin of paper currency in China, we must look to an age later than the Han dynasty."—*ibid.*, p. 171.

Ten Reasons for a Paper Currency.

"In the Ming dynasty, about A.D. 1600, when the Board of Revenue was desirous to return to the use of paper money, the

Governor of one of the provinces stated in a memorial what appeared to him to be the ten advantages of paper money. The first was that it could be manufactured at the capital of each province for use in that province. The second was that it could circulate widely. The third was that it could be carried with ease, being light. The fourth was that it could be readily kept in concealment. The fifth was that it was not liable to division like silver into different grades of purity. The sixth was that it did not need weighing, as was the case with silver, whenever it was used in a commercial transaction. The seventh advantage was that silversmiths could not clip it for their own nefarious profit. The eighth was that it was not exposed to the peering gaze of the thief's rapacity. The ninth was that if paper took the place of copper, and copper ceased to be used for making cash, there would be a saving in the cost of this metal to the Government, or the copper saved could be used in manufacturing arms for the troops. The tenth advantage would be that if paper were used instead of silver, the silver might be stored up by the Government.

"Our author in citing these ten reasons for adopting a paper currency adds that the last two are defective. In adopting paper for the mercantile classes the copper coins would remain in use to meet the necessities of the common people. So also silver should continue to be used in making ornamental articles and head-gear of various kinds. It would be a mistake to shunt it up in the Government treasury and prevent its being accessible to silversmiths. There is a fallacy lying hidden in our author's reasoning. He thought that the authority of the Government was all that was essential to the successful establishment of a circulating medium, not reflecting that if paper were so employed there was need of a corresponding store of gold or silver in readiness to pay value for the notes if the people lost confidence in them and wished for their metallic equivalent. It did not strike him that the financial credit of the Government bank can be sustained only by payment in gold or silver to discontented holders of paper. He thought only of supplying the demand for ornaments and not of a run on the treasury. In fact, China is too large a country and the merchants as a body too powerful by their numbers for the Government to attempt successfully the prohibition of silver, nor can it refuse to allow the issue of paper money by private banks. The difficulty in establishing a national bank is found in the fact that the Government cannot take better care of the interests of the mercantile classes than each private capitalist can do for himself, and in the difference which exists in the commercial conditions of the various provinces.

"In the ten reasons for adopting a paper currency, when it is suggested that each treasurer of a province should issue bank notes,

it may well be asked, why not leave native banks in possession of this privilege, which is not only a benefit to themselves but to trade generally? It is certainly a great advantage to travellers that through the wide business connections of the Chinese bankers, bills of exchange may be bought in Shanghai and cashed in any of the provincial capitals of the empire. Both to native and foreigner this is an unquestioned benefit, and renders travelling ten-fold easier than if the silver had to be carried in the traveller's trunks. In the fifth and sixth reasons alleged for Government paper currency the Chinese writer touches upon two patent and unanswerable objections to the present system. The silver is weighed at each transaction, and it is circulated in varying states of purity. The scales at which silver is weighed differ in each locality and the traveller feels himself outwitted. His money becomes less at each new point in his journey, and a general feeling of dissatisfaction with the currency grows upon him on his return; however, he would naturally become more reconciled to the tyranny of the scales had he silver left to weigh, for when he arrived again at places of large trade, his *sycee* weighs as much in proportion to bulk as before. The scale differs to allow the money-changers in towns of small trade to pay their expenses, and when this is understood the indignation of the traveller sinks somewhat. But there is a worse trouble than the variation in scales. It is the variations in the purity of the silver. It becomes alloyed in many ways and is reduced to purity only by re-melting. Blacksmiths melt the silver, and in all places of large trade there are assaying offices which certify the purity of silver for a small sum. Silver sent to Peking to represent taxes has cut into it by the treasurer of the province, the name of the *arrondissement* from which it comes, and of the blacksmith who melted it. Only silver of first purity is allowed to be sent to Peking. In this way the Government indirectly aids in rendering the silver which is in circulation as money much more pure than it would otherwise be, but the introduction of new silver into the money market is the work of merchants alone. Also the law does in a direct way by statute undertake to protect silver from the incessant efforts of the unprincipled who for private profit in every possible way try to diminish its purity. But it is so hard to discover the evil-doer that statutes are promulgated in vain and the owner of the metal is in fact only protected by the shroff and the assaying office. When it is considered how much impure silver is in circulation there does seem strong reasons for a silver coinage. This would at once improve the standard and raise the average of purity. To reject the precious metals as currency because their purity is tampered with, in favour of paper, would be a mistake. The cure for the evil is to maintain the efficiency of

the statutes which aim at the punishment of crimes against the currency. Mexican dollars are now much more uniform in value than sycee silver, and the convenience of a coin is so great that it is remarkable that the Chinese Government does not follow Japanese example and establish a mint."—*ibid.*, p. 203.

The Origin of Paper Currency in Seals.

"The introduction of paper currency in China is very closely connected with the ancient history of printing. Those native authors who have referred to early passages which speak of the employment of seals by officers to give a money value to certain articles as the real commencement of paper currency have done quite right. Grass cloth, silk, and paper all admit of an impression being made on them with ink or with vermilion. In fact, vermilion mixed with oil was perhaps the oldest printer's ink, and the impression of the seal made of jade, copper, silver, gold or wood was, if we allow the word block to include stone and metal, the oldest block printing. The Chinese saw seals from Western Asia and they made them themselves with their own writing cut upon them, to be used in giving validity to official documents, as also to employ them as amulets to protect them from imaginary evils. The seal was not only used to stamp charms, but the handle was a tortoise, a tiger, or some other emblem of longevity or power, in order that it might have a defensive effect against evil. These ideas imported from Western Asia with the seals were as willingly adopted by the Chinese for imitation as the more reasonable idea of employing the seal as a manifest proof of the genuineness of documents. Among the more important of the improvements introduced and additions made to the Chow legislation by the founder of the Ch'in dynasty was the extensive use of seals. The progressive spirit of that dynasty is unquestionable. This is shewn by the fact that many features of the Ch'in legislation were adopted by the Han Emperors. Among them was that of giving a seal to every officer. The silver seals now called *Knan-fang* of officers of the 1st and 2nd rank, and the copper seals of Taotais are the continuation of an old rule which has come down from B.C. 221. The system has been found most useful because the seal was the sign of delegated authority, and of the fact that the viceroy instead of being himself a monarch was the representative of the imperial head of the state. The seal was the visible sign of the change from feudalism to centralisation. From that time it gradually became a

fixed idea with the Chinese that they must have a seal impressed on every writing as a proof of property or genuineness. All scholars and firms at the present time have a seal, and seals are placed on books, drawings, and letters, to an extent which is quite remarkable. Since this custom can be traced back to the Han dynasty it becomes easy to understand that the way was open whenever any one chose to extend a seal, by cutting it in relief instead of internally, into any one kind of blank form and into the printing of books. The multiplication of copies by stamping followed readily from the use of a stamp to give validity, and a stamp of four or eight or ten characters might readily be expanded into twenty or fifty. So then we have in the early use of seals the ideas of official validity, of superstitious efficacy and of the possible multiplication of copies, beside the use of the seal, as given to every official appointed by the Emperor.

"Some one may ask what have superstitious observances to do with the origin of printing and of paper currency? To this the reply may be given that superstition makes a custom popular and often helps a good notion to spread rapidly. The Taoists were accustomed to cut seals of the wood of the jujube tree four inches square, or three-and-a-half of our inches, and circulated them among the people to check evil influences. They taught the people to believe that there were evil influences in the air always ready to affect them mischievously, and then they provided them with guardian charms to secure them from the harm which they themselves had taught them to fear. They are not alone in thus acting, for in other countries it has happened that superstition has been ingeniously made a source of pecuniary profit by not a few. The occasions when the use of seals as proof of genuineness were required were of course very numerous. It is mentioned for instance that generals had their orders cut on seals for rapid circulation among the troops under their command. In such a case in the third and fourth centuries the writing in camp orders would be white while the ground was black or red. All the seal cutting and the circulation of charms and of mirrors with lucky sentences and animal shapes engraven on them were in every case so much preparation for the success of paper currency when the time should come. Not only does the credit rich men possess contribute to that success, but also the invention of blank forms rapidly multiplied by printing. The blank form saves time in writing and it also makes the document more uniform, more easily tested and more readily accepted as valid when presented to a third person. The dynasty of Ch'in Shi-huang gave the use of seals to China and from that time forward the possession of an official seal became essential to each office. The Han dynasty simply followed the Ch'in dynasty rule. When this came to be the

case the seal impressed with vermilion was attached by regulation to every document issuing from each officer, metropolitan or rural.

"If then the Chinese in the Han dynasty had the common use of seals large and small, and if paper was introduced about A.D. 200 as we know, how long a time might be expected to elapse before the use of paper money, and the era of the printing of books? In fact, seven centuries passed before books were commonly printed, and eight centuries before paper currency was adopted systematically by the Government. The Chinese, intelligent as they certainly are, and lovers of every practical improvement as they plainly are, were not at all in a hurry to print books to save the expense of copying, or to issue Government paper money to save the expense of copper or silver. What the Chinese highly appreciate when adopted they are usually very slow to adopt. This is true of gunpowder, which they only began to use about the twelfth century, although they had fireworks in the sixth century. A small cause often retards the adoption of remarkable inventions. In this case it seems to have been the habit among workmen of cutting into the material of the seal instead of cutting the inscription in relief. When once the thought occurred to some one that relief cutting would leave a white ground with a red or a black inscription, the path would be open for the invention of blank forms first, and for the printing of books afterwards. What Chinese authors tell us is that seals in the Han dynasty and later left the characters white when impressions were taken from them, and further that in the Tang dynasty the characters in the impressions from seals became red. The meaning of this statement appears to be that the old seals were all or almost all cut in *intaglio* and that about the beginning of the Tang dynasty cameo cutting or cutting in relief became common. This casual remark of a Chinese author throws light on the fact that paper currency began in the Tang dynasty and at the same time the period of printing books was brought so much nearer because the artisans of that age began to engrave in relief. There was in fact Government paper money about A.D. 806 and there were printed books about A.D. 920."—*ibid.*, p. 265.

The History of Paper Currency.

"The first attempt at paper currency in China of which any record remains was in A.D. 806, when bills of exchange were called 'flying money.' Merchants in the capital could by an ordinance then first made receive Government bills in return for the merchants' copper money. On arrival at any provincial capital

they could receive from the provincial treasurer the amount stated on the bill. There was a return to this system, which was a sort of banking facility offered to the merchants by the Government, about the year A.D. 960. A bureau was instituted in Kai-feng-fu, then the capital, for the transaction of this business.

"In 1023 Szechuen was suffering from the iron cash coinage which the Government from scarcity of copper was forcing on the people there. The paper notes then put in circulation at Chêng-tu by the Government were meant as a relief. They were to be returned once in three years. The idea sprang up among the rich merchants and was accepted by the Government, and the merchants conducted the business. The limit of capital represented by the notes was 1,255,300 strings, a string being a thousand copper cash. In A.D. 1150 the Golden Tartars had just conquered North-China, and about this time they adopted a currency in paper because they found copper scarce. Copper, silver and gold have always been chiefly found in South China. A North-China kingdom finds it convenient to use paper so far as possible, to prevent its being dependent on a southern neighbor. From this time forward, during a century of the Golden Tartars and another century of the Mongol domination, strenuous efforts were made to maintain a paper currency. Colonel YULE, Dr. BUSHELL and others have printed fac-similes of the notes of these periods. They are found, for example, in YULE's *Marco Polo* and in the *Journal of the Peking Oriental Society* published this year. All the efforts of the Government did not secure the credit of the notes at par. On the contrary, they became depreciated to an extreme degree. This, however, did not prevent the Government of the Ming dynasty, which acquired the sovereignty in A.D. 1368, from continuing for a time paper currency which was finally abandoned as silver flowed into the country through the foreign trade which brought to the southern ports a portion of the products of Mexican and Peruvian mines. It was American silver that gave the death-blow to paper currency in China. The arrival of sufficient silver was the real relief which Chinese trade required. Notes were finally abolished about A.D. 1620. Thus the conquest made by silver over paper occupied about a century or a little more, from the commencement of the trade of the Spaniards and Portuguese with Canton."—*ibid.*, p. 292.

Gold in 1889.

"Gold has kept its price well in China during recent years. The constant demand from Europe to meet the needs

of the countries that have lately established a gold coinage has had its effect on the gold market in China. Germany began to absorb eighty million pounds sterling fourteen years ago. It was done in the following manner. There were in 1875 in circulation 640 million marks of small notes, equal in English currency to 32 millions sterling. They were replaced by notes of 100 marks or above 100 marks in value, that is, £5 notes and £10 notes, and by gold and small coins. Between the middle of 1875 and the end of that year notes had been exchanged for coin to the extent of £15,000,000. Paper gave place to coin in Europe just as in the Ming dynasty in China silver increased in quantity and the Government found that it would be better not to issue any more paper notes. The new love for gold in Europe has influenced the most distant money markets. Consequently Peking, Chefoo and Corea are now every year sending gold to Shanghai for transmission to Europe. They are sending all they can and as fast as they can get it ready. Take for instance the export of gold from Tientsin. The following figures appear in the Customs' Reports, and it must be remembered that it is Peking gold chiefly that is here entered :—

EXPORT OF GOLD FROM TIENTSIN.

1882	...	...	...	...	Tls.	574,414
1883	...	...	...	...	"	610,022
1884	...	...	...	...	"	112,238
1885	...	...	...	...	"	1,781,337
1886	...	...	...	...	"	1,875,976
1887	...	...	...	...	"	1,706,864
1888	...	...	...	...	"	1,398,264
1889 (six months)	...	...	...	...	"	1,044,459

"The rich families in Peking are parting with their hoards of gold because of the good price at Shanghai. Silver is cheap and all the rich property-holders of China count their treasures in taels of silver. They are attracted by the gain which they can acquire by an increase in the number of taels of silver which is paid them at Shanghai for hoarded gold, since the price of silver went down. This table shews how steady on the whole the outflow now is year after year. It went on increasing till 1886. Then it declined a little. Now it is rising again. In Chinese life it is quite common for rich families to become poor. In such cases gold ornaments will be exchanged for silver. The thick needles round which women's hair is bound, their bracelets, rings, and other

ornaments, if of gold, will, when poverty comes in at the door, be exchanged for silver. Gold thus sacrificed may go far to pay a husband's debts. Men who are not poor will give their gold to make profit by exchange. In Peking there are likely to be many rich men who have acquired wealth in the provinces and who have for convenience carried it to Peking in the form of gold. From their hoards much of the present stream is probably supplied. They see a sufficient reason when they read in the Chinese newspapers that they can obtain perhaps Tls. 23.6 of silver for one tael of gold in the Shanghai market.

"The gold sent from Chefoo to Shanghai is gradually increasing in quantity as may be seen in the following table:—

EXPORT OF GOLD FROM CHEFOO.

						Value in Hai-kuan Taels.
1881	...	...	...	...	...	58,348
1882	...	...	...	...	...	68,448
1883	...	...	...	...	...	48,893
1884	...	...	...	...	...	47,457
1885	...	...	...	...	...	69,520
1886	...	...	...	...	...	164,648
1887	...	...	...	...	...	140,970
1888	...	...	...	...	...	233,000
1889 (six months)	...	...	...	...	...	66,260
						897,544

"The export rose until 1882. Then it declined during two years. In 1885 it rose again during three years. Now it is falling. The highest amount it has reached has been about the value of £60,000 sterling a year. Books say little about Shantung gold. In the Book of History, lead is the only metal found there, in the section known as the 'Tribute of Yu.' In those days, four thousand years ago, gold, silver and copper came from Southern China as tribute to the emperors, the last two coming from Southern China alone. The great source for receiving gold was, however, the tribes who inhabited Tartary. War with these tribes in the first and second centuries before Christ brought to China immense amounts of gold. History mentions gifts made to victorious soldiers at one time of more than 200,000 catties. Of course it was a very small catty which was in use then. This was after a battle in which 19,000 of the Hiung-nu were killed. The gold

would be taken from the captured tents and the armour of the slain warriors. All the gold then used as ornaments by Tartar men and women would naturally be brought from Siberia or the mountainous parts of Tartary.

"The gold of Corea partly is forwarded to China, but most of it goes to Japan. In both cases it is probably sooner or later sent to Europe to meet the present demand :—

EXPORT OF GOLD FROM COREA.

				Value in Dollars.
1885	...	To China	...	46,100
1886	...	"	...	218,748
1887	...	"	...	210,294
1888	...	"	...	348,564
1889 (six months)	...	...	...	115,014
				938,715
1885	...	To Japan	...	388,269
1886	...	"	...	911,745
1887	...	"	...	1,177,975
1888	...	"	...	1,025,401
1889 (six months)	...	...	...	339,448
				3,836,838

"There seems to be no probability of a rapid increase in the yield of Chefoo gold or that of Corea. The native apathy in regard to the existence of gold in various parts of Shantung promontory is noticed by Dr. WILLIAMSON in his *Journeys in North-China*. Yet there is a sufficient yield of the most precious of metals to warrant the expectation that after a time Shantung may produce gold in greater abundance. The legal prohibition to search for gold has led to the surface only being scratched. To dig beneath the surface is to deprive the land of its prosperity. This belief has influenced both the people and the Government. The consequence is that more is left for the men of coming ages. In Australia the abundance of gold does not diminish as the works become deeper, and it is expected that they may be continued for a depth of two thousand feet, and gold still be found. If this view is correct, China must have a good prospect of obtaining large

quantities of gold in future years, not only in Shantung but in many parts of the southern provinces and on the southern slopes of the Altai mountains in particular. The present drain of gold from Shanghai does not alarm the Chinese much, but it must later produce an effect on them. The following table shews the present condition of the export:—

EXPORT OF GOLD FROM SHANGHAI.

					Value in Haikuan Taels.
1886 ...	...	...	...	...	1,746,248
1887 ...	...	...	...	...	3,449,853
1888 ...	...	...	...	...	2,018,899
1889 (six months) ...	...	...	...	...	862,875

* "The maximum was as appears from these figures about eight hundred and thirty thousand pounds sterling in 1887. The amount of export is now declining. This is not because the demand in the west is less, but more probably because there is a limit to the quantity of gold which the holders are willing to convert into silver at the current price."—*ibid.*, p. 437.

*Customs Duties at Newchwang.**

23rd September.—"The Viceroy Li submits a return of the duties received by the Foreign Customs at Newchwang during the quarter ending 30th September 1888. The accounts have been audited by the Commissioner of Customs and a *Wei-yuan* acting under the direction of the Taotai at the port, and the total collection for the period in question is shown to be Tls 110,155.2.2.9.4, of which a sum of Tls. 72,340.9.2.7.8.5 has been appropriated for the payment of troops and miscellaneous expenditure. The balance remaining over from the present and previous quarters is Tls. 74,511.7.0.6.9.3.6."—*ibid.*, p. 445.

Silver in China.

"The silver used in China as a circulating medium in her commerce has been increasing, in quantity especially, for four hundred years, and most rapidly of all during the present

* Note the six places of decimals in the totals.

century. Each industrious Chiuaman represents so much wealth by his labour, that is, so much silver, for silver has now for several centuries been the standard of money value in this country. The increase of population means an increase of wealth wherever there is scope for industry; and in localities where opportunity is wanting, it leads to emigration. At the beginning of the Ming dynasty, in the latter half of the fourteenth century, the public currency had fallen into a most unsatisfactory state through the Government not being able to maintain the credit of the paper notes then used. Yünnan was conquered, and it contained many silver mines, and these were worked to increase the quantity of silver then rapidly coming into use as a medium of exchange. We are told that in 1578 the Government received from Yünnan 13,764 taels in paper money, 944 piculs of grain and 5,769 strings of shells. Two hundred years later the amount received in hemp, cloth and silver amounted to 14,801 taels of this last metal. The strings of shells used as money had disappeared. The cumbersome grain tribute in heavy bags had become changed for silver. But hemp and cloth were still received by the Government tax-collector because they could be exchanged for silver, and the expense of conveyance of these articles was not very great. Yet after a few more decades this mode of paying taxes will again be exchanged for silver, which in a country like China has proved to be the most economical form of tribute. The Government in these circumstances began to prize silver very highly. It keeps its value as an article in great request for ornamental work. It is cheaper to convey than other kinds of tribute. It is acceptable in trade, and the merchant is far more willing to part with his goods for silver than for paper money. Hence the Government made efforts to obtain more of it. They set criminals to work in the mines of Yünnan. This was in 1460; and they do not seem to have allowed Chinese employers of labour to manage mining operations. They considered it good policy to keep the mines in their own hands, and they ordered the high officers to report fully on any failure in the working or diminution in the yield of metal. Then in 1463 the works were suddenly ordered to be stopped, probably because of earthquakes, for a few years later, in 1511, the Governor of Yünnan sent up a memorial advising that all the mines should be stopped, on account of fresh earthquakes; but they were opened again in 1514, notwithstanding other objections which were pressed at the time, such as the gathering of a rough-spirited population at the mines, and the neglect of agriculture in the province leading to want of food to supply the needs of immigrants. At this very time American silver began to enter the country through foreign trade at Canton and Amoy. More silver was thus introduced and a real need

supplied, for it enabled Government to abandon both the shell currency in the south-west and the paper currency everywhere, and the merchants were very glad to see the last of the Governments, (*sic*) and to have in their place this shining metal. Silver was now wanted by every one, to keep in store or use in buying as he pleased.

"The value of silver in copper cash has gone through great vicissitudes. It has been three thousand and it has been one thousand per tael. In A.D. 1696 a tael of silver was worth 1,750 cash, and it is now, A.D. 1889, worth 1,380 in the Shanghai market. In the reign of Yung Cheng, about A.D. 1730, thirty-six taels of silver were paid for a month's maintenance to twenty-one workmen at cash foundries in Yunnan. That is to say, one ounce and three-fourths of silver would then support an able-bodied workman for a month. In 1555 the casting of cash in Yunnan was commenced, on account of copper being produced there in abundance. The disuse of paper made a new supply, both of silver and of copper cash, a necessity, and from that time forward both metals have been needed; and when the growth of population is remembered they must still continue to be required in increasing quantity. Two centuries ago the workman could live for 100 cash a day. Now more is required, because prices have risen and every one who carries on his shoulder his baskets of market-produce from his little farm to the adjoining local centre of merchandise, expects more money for it than his grandfather did. The old currency needs to be modified to meet the new conditions. Copper cash are not enough for the uses of common life. Silver is required to do what the cash, through gradual sinking in value, cannot do. Two hundred cash are wanted to buy that amount of food and clothing for which in former times one hundred would have been enough. That is to say, the man who goes to market to buy must carry with him twice as much weight in copper as his great-grandfather did. It is more convenient in these circumstances to have small silver coins, and this is our convenience in the west, or small notes issued by native banks and properly stamped and inscribed may be used, as they still are in Peking.

"Yet small silver coins could not now in China take the place of copper cash. Copper must continue to rank in China as the most widely useful of all currencies, because of the disproportion in the expense of living in large cities and in country districts, and the wide differences in climate existing between the north and the south and between mountain and plain in so large a country as China. That coin is most adapted to China which has the most minute divisibility. A dollar which is now worth 3/3d. is divisible into a thousand separate coins composed of a mixture of copper and

zinc. It suits the prices of marketable articles and the incomes of the people to retain this sub-division in current coins. Even silver is circulated in very small lumps as well as in large ones, and the small hand steelyard used in weighing it is sub-divided into hundredths of an ounce. Such a steelyard is part of the kit of every traveller, as a check on the weighing of the money-shops."—*ibid.*, p. 534.

Copper Cash.

"The older books written by Chinese archæologists on the history of *cash* contain at the beginning examples of money professing to come down from the primitive ages. Some of them belong to Fnhî and others to Shennang. The foreign collector of *cash* ought to know if he has such coins in his cabinet that this immense antiquity is given to them by mediæval mythmakers. The best modern numismatists do not recognise such a claim. Yet they appear in a book of so much authority as *Hsi Ch'ing Ku Chien*, compiled by an imperial commission and published A.D. 1749. Seven hundred years ago, when the capital was at Hangchow, the first complete book on Chinese coins was published. Since that time archæologists have been numerous and a persistent effort has been made to collect newly-found coins. Builders of houses and walls, countrymen at work in the fields, restorers of bridges, and diggers of canals in any part of China, from time to time meet with old cash which are added to the current coins in circulation or are sold or presented to local numismatists. There never has been a law against the use of old cash mixed with the new, nor has there been any official effort made to collect them, and in consequence it is an everyday occurrence to meet with coins made a thousand years ago. The traveller in China does not know, unless he examines carefully, how many relics of distant centuries constantly pass through his hands or through those of his 'faithful Achaetes.'

"The chief interest attaches to coins of a time anterior to the bookburning—B.C. 211. That was the period when literature and the arts and sciences took a mighty spring upward. It was the time when great books were written, destined to be ever after preserved by a grateful nation as those precious heirlooms which a mad conqueror in his enmity against the sages failed to destroy. The coins of that time are indicators of progress in commerce and the arts in various localities of Northern China. We may consider it as proved that bronze casting and the manufacture of iron implements as well as goldsmith's and silversmith's work were

well advanced long before Confucius. The history known as *Kuo yü* shews that this was the case in regard to work in bronze. But cash were cast before B.C. 524, for it is recorded in that year that larger coins than had been before made were then cast in Honan on the banks of the Yellow River by order of the Chow emperor. From the collections of the numismatists it appears that a square hole in the middle and a legend of two characters were in use as early as this in Chinese coins. *Huo* was the word for 'money,' meaning that which is changed (*hua*) for something else. *Pao*, 'valuable,' was prefixed to it. But coins must have existed before this, and in the Han dynasty it was fully believed that Kiang Tai-kung, the chief minister of Wên Wang in the 12th century before our era, introduced them in Shensi when in office and afterwards in Shantung when he retired to his principality. His special repute is for advancing commerce, and it was under his fostering care that the salt trade of Northern Shantung came to exercise a decided influence on the development of internal commerce in ancient China. The history of Pankoo ascribes to Kiang Tai-kung the origin of round coins as distinguished from knives and pieces of cloth. We may adopt this view and may connect it with improvements in metallurgy and new acquisitions of foreign knowledge at the beginning of the Chou dynasty. If Kiang Tai-kung is rightly credited with the origination of round cash, the period of that improvement is then fixed to the 12th century before our era. Yet it may be that he is credited with it because he promoted trade and was possessed of political sagacity shewn in other useful measures. If at any time between the eleventh and fifth centuries before our era the coins called *cash* were introduced by any statesman in Northern Shantung, whose name did not shine out with lustre in history, it was very likely that the improvement would be attributed to Kiang Tai-kung. It would be by a suggestion from the strings of sea-shells then used as money that the idea of a hole for stringing the new copper coins would be most probably derived. Further it would be before the time of Kwan Chung, the great administrative statesman of the seventh century, for in the book purporting to be written by Kwan Chung, there are several references to the coining of cash, but the compiler does not attribute the invention to Kwan Chung himself. Perhaps in these circumstances it may be best to assign the first round metal coinage to about the ninth century, the age of Siuen Wang, when the country was prosperous and wars were conducted successfully. But this may be too late, and there is really no very strong reason based in the old literature of China why to Kiang Tai-kung the honour of introducing a copper currency should not be assigned. The remarkable old work *Chowli*, in describing the

administration through all its departments mentions among them a cash office for the manufacture and issue of cash. But this book was probably small at first, and its bulk increased from one period to another, and this particular statement may have been inserted, we know not when, by some unknown official. We must wait for more discoveries from underground. The railway from Peking to Hankow will in Chihli and Honan proceed through a country occupied by a people who for four thousand years at least have ploughed and sown the land, carried the produce to market, exchanged it for something necessary for use or ornament, and returned to their homes with their new possessions. The railway works may anywhere in that region, 'rich with the spoils of time,' yield interesting treasures which will throw light on the past. Should there be a line made from the city of Confucius, or from Taishan to the north of it, to Tientsin, it would bisect the very territory which belonged as a feudal fief to the traditional founder of the copper currency of China. As about many other ancient matters, so on the question of the origin of this currency, our successors will know with certainty what now cannot be determined.—*ibid.*, p. 745.

CORRESPONDENCE.

THE PRESERVATION OF THE NESTORIAN TABLET AND OTHER ANCIENT MONUMENTS AT SI-AN-FU.

The following correspondence on this subject has passed between the President of the China Branch of the Royal Asiatic Society and the *doyen* of the Diplomatic Body at Peking :—

CHINA BRANCH OF THE ROYAL ASIATIC SOCIETY,
SHANGHAI, 24th February 1890.

SIR,

In accordance with a resolution lately passed at a meeting of the Council of the China Branch of the Royal Asiatic Society, I have the honour to bring to Your Excellency's notice the condition of the interesting monument at Si-an-fu known as the Nestorian Tablet. Your Excellency will see from the accompanying photograph that it is now entirely exposed to the weather. When it was seen some years ago by the Rev. A. WILLIAMSON, who has handed me this photograph (taken by a recent visitor) for transmission to Your Excellency, it was supported by a brick wall. This wall has now been removed, and the monument, being quite unprotected, is likely to suffer rapid deterioration. There are several other tablets in its vicinity of great historical interest to China, and it is thought that the high officials at Peking might possibly be induced, on Your Excellency's representation, to take steps for the protection of all these monuments. On behalf of the Asiatic Society, I venture, therefore, to beg that Your Excellency will be good enough to mention the matter in the proper quarter, with a view to the

conservation of these monuments, and especially of the Nestorian Tablet, which has so long attracted the attention of all interested in the history of the ancient relations between China and Western countries.

I have, etc.,

(Signed) P. J. HUGHES,
*President of the China Branch
 of the Royal Asiatic Society.*

To H.E. Herr M. VON BRANDT,
*Minister of the German Empire,
 Doyen of the Diplomatic Body,
 PEKING.*

GESANDTSCHAFT DES DEUTSCHEN REICHS ZU PEKING,
 PEKING, 15th March, 1890.

SIR,

I have the honour to acknowledge the receipt of your letter dated 24th February, referring to the Nestorian Tablet at Si-an-fu, and to inform you, in reply, that my colleagues and myself have had great pleasure in forwarding the request of the China Branch of the Royal Asiatic Society for the preservation of this interesting relic of ancient times and Christianity to the Tsungli Yamên, and in recommending it most warmly to the attention of His Highness Prince CH'ING and their Excellencies the Ministers.

I have, etc.,

(Signed) M. VON BRANDT,
Minister of the German Empire.

P. J. HUGHES, Esq.,
*President of the China Branch
 of the Royal Asiatic Society,
 SHANGHAI.*

GESANDTSCHAFT DES DEUTSCHEN REICHS ZU PEKING,
PEKING, *March 25th*, 1890.

SIR,

Referring to my letter of 15th inst., I have the honour to bring to your knowledge that the Tsung-li Yamên have informed my colleagues and myself that they have written to the provincial authorities of Shensi to see that the local authorities take the necessary steps for the protection and preservation of the Nestorian Tablet at Sianfu.

My colleagues and myself would feel very much obliged if the members of the learned Society whose President you are would let us have from time to time such information as they may be able to get as to the efficacy of the measures adopted by the local authorities.

I have, etc.,

(Signed) M. VON BRANDT.

P. J. HUGHES, Esquire,
*President of the China Branch of the
Royal Asiatic Society,*
SHANGHAI.

CHINA BRANCH OF THE ROYAL ASIATIC SOCIETY,
SHANGHAI, *2nd April*, 1890.

SIR,

I have the honour to acknowledge the receipt of your Excellency's letters of 15th and 25th March on the subject of the protection and preservation of the Nestorian Tablet.

The members of our Society, to whom I shall take an early opportunity of reading your letters, will be much gratified to learn

that the provincial authorities of Shensi have been instructed by the Tsung-li Yamén to take the necessary steps for the protection of the Tablet.

On behalf of the Society I beg your Excellency and your colleagues to accept my sincere thanks for the interest which you have shown and the trouble you have taken in this matter.

I have, etc.,
(Signed) P. J. HUGHES,
President.

To His Excellency

Herr M. von BRANDT,

Minister of the German Empire,

Doyen of the Diplomatic Body,

PEKING.



LITERARY NOTE.

We hear that Prof. LEGGE of Oxford is engaged in preparing a new English version of the Chinese philosopher Chuang-tzū. In order to be quite independent in his renderings, the learned translator proposes to take no cognizance of Mr. GILES' translation of the same work.

It will be interesting to observe to what extent the two authorities will agree or disagree.

PREHISTORIC CHINA.

By ERNST FABER, DR. THEOL.

INTRODUCTION.

Prehistoric China! Prehistoric means "before history." Not that we should suppose China had ever been without a history. Life, and especially human life, means history. Wherever there is life there are changes of various kinds, and there is development of some kind. We have, therefore, to take the word "history" in a narrower sense, as "Writing on History." Prehistoric China, then, means China as it existed before *reliable* historical records were written about its state and the events of life within its boundaries.

Chinese history begins with the Annals of the feudal state of Lu, 722 B.C., published by Confucius 240 years later. Though even this work has suffered somewhat by the doctrinal tenets of Confucius, still we find in it a statement of facts and a natural order of events. There are also other records of that period preserved by which many statements of the Confucian text can be verified and others rectified. Of the time before the eighth century B.C. we find no such trustworthy historical records in China. Although there are still a number of documents in existence supposed to belong to earlier periods, we have no unquestionable evidence of their authenticity, but strong arguments to the contrary. The safest position that can be taken under such circumstances is to regard all documents of such earlier literature of China as productions of the time of Confucius and succeeding ages. Many of those works, are, we admit, based on earlier traditions and, it may be, even on earlier written memoranda, but facts

and legends, truth and imagination, original statements and later enlargements are deplorably mixed together. We need a trustworthy guide to lead us through such labyrinths. The same is true of other traditions and folk-lore preserved by later writers. There are also ancient monuments and other relics of antiquity found in China, all of which should be examined and compared, but we have no access to them. No Chinese museum is at our disposal where we could find antiquities of all ages, well arranged for comparative study. Thus it seems almost hopeless to arrive at anything reliable in regard to the earliest history of Chinese life.

There is, however, fortunately enough, still a rich mine of solid historical metal unworked at our feet—I mean the Chinese written characters. Much has been written on Chinese Writing, but the written characters have not yet been used as guides into the remotest antiquity of China. This is the purpose of the present paper. Every written character, taken in its isolated value, without reference to the composition and meaning of sentences, is a *historical monument*. But some characters are of an earlier, some of a later, date. By applying a truly scientific method we are enabled to follow the stream of Chinese writing upward to its source, from the myriads of written characters of the present day to its one hundred elementary characters of about 4,000 years ago. These 100 elementary characters, each of which is a sketch of an object out of the scenery of Chinese life 4,000 years ago, will reveal to us Prehistoric China in an astonishing comprehensiveness of detail.

In opening thus a new path of research it can, of course, not be expected that every step should be smooth at once as on well-trodden ground. But the path is leading to a summit, and the view from there over many important questions relating to Chinese antiquity will more than repay

the outlay of time and labour. The results will be decisive in some respects. May qualified scholars improve on the imperfections of this rough-hewn attempt.

For an easier understanding of the paper with all its detailed arguments, a short statement of its method and a brief summary of its results will be welcomed by the student. The attribute of "truly scientific" is claimed for the method. *Facts* and *evidence* are alone the materials it works with. The facts are the myriads of Chinese written characters of the present day. Most of these characters are composite forms. By analysis we reduce them to their component parts of simple characters, i.e., into forms still recognizable as characters and not further reducible. Thus we arrive at about 100 Elementary Characters. I say *about* 100, without giving a definite number, because the ancient forms of some characters are undecipherable. A few examples may suffice for illustration:—**𧈧** from the classifier **虫** and the primitive **科** a compound of **禾** and **斗**. Thus we find the three elementary characters **虫**, **禾** and **斗** as component parts of the character **𧈧**. The meaning of each component part is, beginning at the left side, "worm," "grain," "peck." As, however, the two latter characters form a primitive, and as such only indicate the pronunciation, which is in this case *k'o*, we arrive at the meaning—a worm called *k'o*, or a tadpole.

葆 is composed of **艹** and **保** = **亻** or **人**, **口** and **木**, altogether of four elementary characters.

厯 of **木** and **厯** = **广**, **日**, **月**, **犬**, five elementary characters.

數 of **欠** and **𩇛** = **十**, **口**, **佳**, four elementary characters, the last being the figure of a bird in ancient writing.

屮 of **火** and **屮** = **广**, **木**, **米**, (the latter probably derived from **木**); thus we get either three or four elementary characters.

異 of 目 and 矣 = 匕, 匕, 人, four elementary characters.

衡 of 行 (which is a composite classifier) and 瞿 = 目, 隹, three elementary characters.

羸 of 女 and 羸 = 亡, 口, 月, 凡, five elementary characters.

夷 of 大 and 弓, two elementary characters.

Examples of characters not decipherable are 也 and 帝.

Analysis of the modern Chinese written characters leads to the following facts :—

- (1.)—The whole multitude of Chinese characters can be divided into two natural groups—*phonetic* and *non-phonetic* ;
- (2.)—All phonetic characters are composed of a classifier and one other character, simple or compound, called primitive ;
- (3.)—The non-phonetic characters are also either simple or compound ;
- (4.)—All characters are reducible to about 100 simple characters ;
- (5.)—Most of these simple, or elementary, characters are contained in the list of 214 classifiers ;
- (6.)—Every elementary character is a rude outline of an object ;
- (7.)—The form of the elementary character contains no indication of its pronunciation ;
- (8.)—We meet with elementary characters modified by turning or by simple additions which are not characters ;
- (9.)—We find two or more elementary characters combined into a new character without indication of pronunciation ;
- (10.)—We find simple, or more frequently compound, characters used to indicate pronunciation ;

The facts formulated in these ten paragraphs are beyond dispute. From them we draw two conclusions with mathematical exactness :—

- 1.—*Elementary characters must have been in existence before compound ones ;*
- 2.—*Compound characters existed before they were used to indicate sound, (i.e., as primitives).*

By these two conclusions three periods of writing are established in logical order :—

- 1.—Elementary characters, or Period of Pictorial Writing ;
- 2.—Their modifications and combinations, or Period of Ideographic Writing ;
- 3.—Their use to indicate pronunciation, or Period of Phonetic Writing.

HISTORY OF CHINESE WRITING.

The facts are taken from Pan Ku's *History of the Han Dynasty* (前漢書) and from the writings of Tuan Yü-ts'ai (段玉裁), a famous writer under the present dynasty (see 皇清經解, Books 567-666). The *Imperial Encyclopædia*, (古今圖書) has been compared, but to no advantage. Other works will be mentioned in the course of the essay.

The earliest attempt at making records was by knotted cords. (Notice the striking similarity in the English word record). The invention of these Quipos is attributed to Sui Jen (燧人), by other traditions to Shen Nung (神農). Both of them are legendary Beings. The early use of quipos is, however, a fact, as they can still be seen among the Tu-fan and Si-fan in Tibet and among the Miao Tsz in Kweichow Province. "When making a contract they bind cords on pieces of wood, the number of knots showing the number in the agreement."—(WUTTKE, *Geschichte der Schrift*, p. 243.)

Fuh Hi ordered Flying-dragon (飛龍氏) to draw the eight trigrams. In the *I-king* (see Dr. LEGGE's translation, App. III, Chap. ii, 11) it is said:—"Anciently, when Pao-hi (=Fuh Hi) had come to the rule of all under heaven, looking up he contemplated the brilliant forms exhibited in the sky, and looking down he surveyed the patterns shown on the earth. He contemplated the ornamental appearances of birds and beasts and the [different] suitabilities of the soil. Near at hand, in his own person, he found things for consideration, and the same at a distance, in things in general.

On this he devised the eight trigrams, to show fully the attributes of the spirit-like and intelligent [operations working secretly], and to classify the qualities of the myriads of things."

This passage exhibits fine imagery and beautiful style, but goes far beyond any possible meaning of the eight trigrams. If it could be applied to the elementary characters of Chinese writing, which will be treated in the following pages, we should praise this passage as an excellent description of them. As it stands, it is nothing more nor less than an example of first-rate composition from the school of Confucius.

Hwang Ti (2700 B.C.) ordered Ts'ang Hieh (倉頡) to observe the course of stars and note down the traces of dragons and birds. Thus were formed the tadpole characters (蝌蚪). It is also stated that another minister of the same emperor, the court-recorder Tsü Sung (沮誦), (MAYERS, *Chinese Reader's Manual*, 747), assisted Ts'ang Hieh. Certain it is, that the two together are worshipped as the "Gods of Writing" (字神). That Ts'ang is commonly mentioned alone is explained as "brevity of style" (文略也). As Ts'ang is described as having had four eyes, we have to take all tradition about him as myth.

From Hwang Ti we have to pass over at least 1,500 years without finding another notice on writing. After the establishment of the Chow dynasty, (commentators say during the reign of king Chiug, 1115-1079 B.C., but the first commentator lived 1,200 years later) some officers, called Pao Shi (保氏), used the *Six Scripts* (六書) to teach their royal pupils. (See *Chow Li* 地官, xiii, 27, of the small Imperial edition). This statement may be true, though we regard the *Chow Li* as a later compilation (about 200 B.C.) of everything known about official duties, to their latest development during the Chow dynasty. The idea that Duke Chow should have written all those details at the very commencement of

the dynasty is too absurd for refutation. The great prominence given to categories, or short formulas, into which all theoretical as well as technical knowledge is reduced, points to repeated teaching by masters of the art. A few such categories may have become formulated in remoter antiquity, but the *Chow Li* shows such a remarkable perfection in this line, that it can only have been the result of those great schools of Taoism and Confucianism which flourished from the sixth century B.C. to the close of the Chow period.

The text of the *Chow Li* says nothing of the contents of the *Six Scripts*. In the commentaries we find Cheng K'ang-sheng's (A.D. 127-200) description:—first, figures; second, ideas; third, inversions; fourth, relations; fifth, of metaphorical meaning; sixth, phonetic characters. This appears to be a record of ancient tradition. The historian Pan Ku gives the six forms in another order, as: first, 象形; second, 象事; third, 象意; fourth, 象聲; fifth, 轉注; and sixth, 借假. Though Pan Ku lived earlier than Cheng K'ang-sheng, his statement must be of a later origin. We can easily discover the reason why the order was altered,—merely to put together all the 象, pictures of forms, pictures of affairs, pictures of ideas, pictures of sounds; these four categories exhausted whatever the author considered expressible by pictures. It is a theoretical arrangement, and even as such not quite adequate, as the fifth group contains figures of the first simply turned around, pictures of changes. We see, however, from these different statements that the forms of the written characters were an object of study in China a few centuries before the beginning of the Christian era. Taking everything into consideration, we have to place the *Six Scripts* AFTER the invention of the Great Seal characters. The Pao-shis of the Chow dynasty were probably the first teachers of Chinese writing. They brought the whole number of characters, for their own and their pupils' convenience sake, into six groups.

This was the first attempt at a systematical arrangement of all known characters, and an improvement on Chow's work on the Great Seal characters. These six groups were well adapted to the characters then in existence, as the greater part were elementary or ideographic, only a few being phonetic. But these phonetic characters multiplied so much during the classical period, about 550-300 B.C., that in the revival of letters during the Han time the old system of six groups, which had already fallen into disuse, was found impracticable, and a new method had to be adopted. No work on the *Six Scripts* was published till some centuries after the *Shuoh Wen*. This *Shuoh Wen* brought the new method of arrangement by Classifiers to light, which gave it the most decisive success. It is an artificial system compared with the natural system of the *Six Scripts*. But the *Six Scripts* were practicable only for a small number of characters. The very existence of its arrangement is a proof that the number of characters was limited to some hundreds in one class, most probably not much exceeding one thousand as sum total.

In Pan Ku's Catalogue of the Han Library, twelve works dealing with the subject of Written Characters (小學) are mentioned, the first of which is that by the historiographer Chow (太史公). He lived under the Emperor Suen, 827-782 B.C., and was the inventor of the Great Seal characters (大篆). He wrote fifteen slips called "Chow's Book;" six of them were lost in the Kien Wu time, A.D. 25-55, and, consequently, nine were then still in existence. The total number of Chow's Great Seal characters may have been about one thousand. The proof of this calculation will be seen below. During the time of the Contending States, when China was divided into seven quasi-independent kingdoms, every one of them had its own agricultural method, its own width of carriage-wheels, its own criminal law, its own fashion of dress, its *own language and its own writing*.

After the Emperor of Ts'in, Shi Hwang, had united the states into one absolute monarchy, his prime minister Li Sze (李斯), (MAYERS, 368), treated with scorn any writing which did not agree with the letters (文) of Ts'in. He published a book on the subject (227 B.C.) Two other scholars, Chao Kao (趙高) and Hu-wu King (胡毋敬) also wrote independently. A village teacher (officer), 閭里書師, of the Han dynasty (probably between 200-150 B.C.) united these three works into one, with the title 蒼頡一篇. He put sixty characters into one chapter and obtained 55 chapters, which gives a total of 3,300 different characters. These are the Small Seal characters (小篆), and are meant whenever *Chuen shu* are quoted by the *Shwoh Wen*. The Great Seal characters were from that time commonly quoted as "Old Style" (古文).

The scholar Ch'eng Miao (程邈), (MAYERS, 110), during ten years' imprisonment, improved on the Great Seal characters in another way, and produced the form called 隸 or 隸書 (Li shu), (200 B.C.) Yü-ts'ai does not mention Ch'eng, but says that this form of characters was invented by officers of prisons who had much writing to do. It became official business style. Yang Hung (楊雄), (MAYERS, 883), republished the village-teacher's work (A.D. 1), and added 34 chapters, i.e., 2,040 new characters. His work, entitled *Huen-tswan* (訓纂), contained altogether 5,340 different characters in 89 chapters. Not one character was repeated (一無重複也).

Kia Fang (賈訪) added to Yang Hung's work 34 chapters, including 13 chapters written by Pan Ku (班固). Thus his work contained in all 7,380 different characters, in 123 chapters. None of the above-mentioned works have been preserved. Hsi Shen (許慎), however, digested all works that existed in his time, and finished his great *Shwoh Wen* (說文) in the year 100 A.D. It contains 9,353

different characters and 133,441 characters for explanation. To the original number of different characters the author afterwards added 重, 1,163, including 396 ancient forms, 145 forms from Chow and 622 doubtful forms (*see* 說文管見). As the work had suffered more or less in the course of time, Ta Tsü (大徐), (A.D. 986) revised it. All modern editions follow Tsü's text. It contains 9,431 original characters, *i.e.*, 78 more than Hū's, and 1,279 additional characters, *i.e.*, 116 more than Hū's. The explanatory characters, however, are 10,742 less than Hū's.

Hū in his work explains first the sense (義) of each character; secondly, its form (形); and, lastly, its pronunciation (音). The *Shuoh Wen* has remained a standard work among the Chinese. As it contains not only a repository of the ancient form of so many characters, but also a summary of the current meanings attached to them about 2,000 years ago, its value among Chinese scholars is even on the increase, especially among the Han school of Confucianists.

The Confucianists are, and have been during 600 years, divided into two contending parties—the Sung school, with Chu-fu-tsz as head, which is the dominant party, with Imperial sanction for the State examinations, and the Han school, which attempts a grammatico-historical understanding of the Classics. The controversy is still going on, not without heat and bitterness. Several new editions of the *Shuoh Wen* have appeared during the last few years, and a number of critical essays on its contents have been published separately. The introduction of Classifiers was of the greatest benefit to Chinese students. Though Hū Shen is not mentioned as their inventor, his *Shuoh Wen* is the first work known of that makes use of them. After the invention of paper and of the hair-pencil (about 300 A.D.) the elegant forms of writing, 楷書 and 行書, came into use, and after the invention of cutting blocks and printing from them (about 10th century A.D.), the present form used in printing, called Sung pan (宋板), first made its appearance.

Several kinds of fanciful characters were already known to Pan Ku. In the Han Catalogue he mentions a work (八體六技). The commentary explains the 8 *t'ü* as (1) Great Seal, (2) Small Seal, (3) Puzzle (刻符), (4) Animal style (蟲書), (5) for Stamps (摹書), (6) Court style (署書), (7) Spear style (殳書), (8) Business style (隸書). Nothing is said of the *six chü*. The numbers 3, 4, 5 and 7 were fancy-styles, and should serve as a warning against the supposition that inscriptions showing characters of uncommon forms should be considered as very ancient. Many varieties of the Seal characters are brought together in a recent Shanghai publication (孫鳳居先生百體篆書千字文).

The number of written characters had already increased to nearly 25,000 during the Sung dynasty. A further increase is known from K'ang Hi's Dictionary, which contains about 45,000. A list of dates and numbers will be interesting, and cannot but corroborate my conclusions respecting Chinese writing in the beginning of the Chow dynasty:—

Authority.	Period.	Number of different characters.	
	B.C. 2000?	100?	Beginning of elementary characters.
	" 1200	500?	Beginning of ideographic characters.
Chow	" 800	1,000?	Beginning of phonetic characters.
Village Scholar	" 200	3,300	(Increase of 2,300 characters in 600 years).
Shrook Wen	A.D. 100	9,353	(Increase of 6,053 characters in 300 years). Beginning of the use of classifiers.
Ching Ts'iao	" 1150	24,235	(Increase of 14,882 characters in 1,050 years).
K'ang Hi	" 1720	14,449	(Increase of 20,214 characters in 570 years).

This table shows us an increase of 34,000 characters in the course of 1,600 years, or about 2,000 characters for every century. But from the publication of the *Shuoh Wen* back to the historiographer Chow there are nine centuries, and these include the classical period of Chinese literature, and its revival during the Han dynasty, times of the highest mental activity and productiveness. A period of 900 years is certainly quite sufficient to account for the formation of about 8,000 different characters. [Compare the chapter "The Formation of Chinese Phonetic Characters, a Never-Finished Process," given a few pages farther on].

CONCLUSIONS FROM THE HISTORICAL STATEMENTS.

In looking over this short sketch of the History of Chinese Writing, we notice at once that every item belonging to the time before the beginning of the Chow dynasty is mythical. Attempts may have been made to record important events in one way or another, as by quipos, trigrams, figures, etc. This was, however, not writing in the sense of expressing and fixing thought, but served merely to assist the memory by some incontrovertible marks. As soon as definite reasoning had to be expressed in writing, figures were found insufficient, and speech itself, *i.e.*, the expression of thought in sounds, had to be represented. Sound is to man the medium between his mind and external form. The origin of writing, in the proper sense of the word, is, consequently, the introduction of the phonetic element into some ancient forms of figure-representations.

In combining the evidently reliable statements of ancient Chinese authorities on the invention of the Great Seal characters, about 800 B.C., on the *Six Scripts*, no matter whether we place them before or after the Great Seal characters, though the latter is more probable, and on the small number of written characters at the revival of classical learning during the Han dynasty, 300 years after the revision of the Classics by Confucius, we come to the inevitable conclusion, that the beginning of Phonetic Writing in China must fall within the period of the Chow dynasty, i.e., some time after the year 1200 B.C. It is possible that Chow, the inventor of the Great Seal characters, is the inventor of phonetic writing in Chinese, but it is also possible that he merely brought into general acceptance, through his new form of written characters, what had been of spontaneous growth before his time. There can be little doubt, that it was Chow who commenced Writing, in its proper sense, in China. Chow's fifteen slips are probably the First Book written in Chinese. But this does not exclude the existence of memoranda of various kinds. Even Confucius' edition of the *Annals of Lu* resembles old memoranda. This is a conclusion of very serious import. All monuments of literature, including some very famous portions of the Sacred Books of China, said to be older than the Chow dynasty, are thus pronounced to be later productions. It would have been impossible to compose those documents with characters consisting of figures of objects and ideographic combinations. As all the literary remnants of Chinese antiquity show a predominance of phonetic characters, none can be older than the Chow dynasty; they are, most likely, later than Chow's, (8th century B.C.) A few documents may, however, contain some more ancient matter in a revised form.

There may have been other dynasties before the Chow, such as the Hsia and Shang, but their government can have been neither extensive nor powerful. Meagre lists of the names of their kings are perhaps the only genuine records of their times. Any detailed stories such as of Yao, Shun, and Ching Thang, are legends which grew into shape a few centuries before Confucius. Not even the *Book of Odes* contains an allusion to Yao and Shun.

Writing cannot have amounted to much even in the first centuries of the Chow dynasty, till Chow invented the Great Seal characters, about 800 B.C. Of what shape the characters were before that time I have tried in vain to find out from all available Chinese sources. What the Chinese maintain to be the most ancient inscriptions show Seal characters, some of them rather fanciful, others more or less modified, but nevertheless *seal* characters of very uncertain date, it may be a few centuries B.C. or even many centuries A.D. Some other evidence is required to determine their age. Very remarkable is the fact, that the reliable history of China has its beginning with the invention of the Great Seal characters. As the reliability of ancient history is everywhere dependent on the way of its transmission, we are certainly justified in combining these two events. Chinese history became accurate, because Chow's invention enabled the historiographers to give their records a higher finish and to mention also many interesting details which it was before impossible to describe for want of a sufficient number of written characters.

The number of written Chinese characters cannot even then have been more than about 1,000, for the first compilation of written characters at the beginning of the Han dynasty, about 600 years later, contained only 3,300 different characters as the sum of three different works based on Chow's. Chow had, however, started the phonetic principle and had

by it shown the proper method for further development. Thus the different schools of Taoism [compare "The Historical Characteristics of Taoism," in *China Review*, Vol. xiii.] and Confucius with his school had no difficulties in shaping new characters to suit their literary wants. The five ancient Classics, even in their present form, contain not more than 3,235 different characters under 160 classifiers. We have, however, to remember, that the Classics were revised by Confucius and underwent other changes after their destruction in the fire of Ts'in, before they received their present shape. Ancient quotations in the writings of the philosophers of the Chow period differ considerably, and the readings of those in the *Shueh Wen* are perplexing. All the nine Classics, i.e., the Four Books added to the five above-mentioned older Classics, contain now 4,601 different characters. These facts will convince the most scrupulous scholar, that our estimate of the number of Chow's Great Seal characters, published 300 years before Confucius' revision of the Classics, must be very near the truth. There was in existence only about one fourth of the Classics at the time, and this in a simpler form.

THE FORMATION OF CHINESE PHONETIC CHARACTERS A NEVER-FINISHED PROCESS.

When phonetic writing was adopted in China, the old figures were not given up, but they became inevitably somewhat modified and adapted to the new method. Though in each character two elements—the classifier and the phonetic—had soon to be distinguished, yet Chinese scholars never showed so much scientific sense as to bring any of the two kinds into a systematic form, and thus achieve the greatest results by the simplest

means. They never made any attempt to reduce the phonetics to an alphabet, in spite of their acquaintance with the alphabetic writings of India. Not even was the pronunciation of words fixed and attached to a definite set of characters,—about 500 would have sufficed,—and simple figures would have best answered the purpose of writing. But the *Shao Wen* contains already 883 phonetic elements, or primitives, and K'ang Hi's Dictionary 4,081, many of them being very complicated characters. The classifiers are as bad, if not worse, in their scientific value. Even the 214 of K'ang Hi's might with advantage be reduced to 150 or 100, and some of them better chosen. They should have their place invariably on the left side, or above, according to the nature of the character, and not anywhere according to fancy. We see, that after the Chinese had gained the phonetic principle, they allowed it to grow wild, just as chance might shape it. One who is able to understand the simple and beautiful idea underlying the Chinese mode of writing cannot but feel astonished that the Chinese never should have been able fully to grasp it. Attempts have, however, been made in the *Six Scripts*. Since the first mention of such a digest in the *Chow Li* (see p. 147), between 1100 and 200 B.C., several editions of varying merit followed up to about 2,000 years later. Such dates are instructive in other respects. The best known publication on the *Six Scripts* is the *Luh Shu K'ue* (六書故), 13th century A.D. Its author, Tai T'ung (戴侗) deserves great credit for his valuable researches. He came near to our idea of Elementary Characters in his 188 *Parent Forms*, 45 doubtful and 245 Derivatives (included in our ideographic characters), in all 479 graphic bases. [Comp. *The Six Scripts*, by L. C. HOPKINS]. Very handy for finding all known ancient forms of any Chinese character is the work 六書分類, in 12 vols., published during the K'ang Hi period. It is arranged according to the common 214 classifiers. "Six Scripts," as already shown, means

six classes of written characters. Two different arrangements have already been mentioned. In MAYERS' *Reader's Manual*, p. 326, a third may be found, taken from the 讀書記—a work published in 1707. A fourth, though of an earlier date than the latter, is contained in the famous History, or rather Essays on Historical Subjects, 通志, by Cheng Ts'iao (鄭樵), 1108-1162 A.D. The statistics given by Cheng Ts'iao are of some interest, showing the great increase of characters, especially of the phonetic class, from the Han to the Sung period. The sum total of all characters known at his time he gives as 24,235. Of these, nearly 22,000, or nine-tenths, were phonetic, and all five other classes contained together only 2,425, or one-tenth of the whole. All the characters in K'ang Hi's Dictionary, exclusive of duplicate forms, amount to 41,000: the percentage of phonetic and ideographic characters is unknown to me. Dr. MARSHMAN, however, gives the number of phonetic elements, or primitives, as 4,081. As he calculates the average derivatives as less than 10, we get a total sum of about 39,000 to 40,000 phonetic characters. The greatest number of derivatives from one primitive is 74, but many primitives are used in only one combination (see Dr. WILLIAMS' Dictionary, p. lvii).

Cheng Ts'iao's first class contains 608 characters, which are figures, though not all of objects, as symbols of numbers etc. are included, and not all of them simple figures, for many are composite forms. The second class contains 107 characters, which are indicative of a relation or action, as 上, above, 下, below. The third class, containing 740 characters, consists of composite forms, which indicate ideas, as sun and moon combined, meaning "brightness," or two trees, indicating "a forest." The fourth class of 372 characters are inverted or otherwise modified forms of the first class. The fifth class contains 21,810 phonetic characters. The sixth class of 598 characters, with borrowed meaning, is outside of the principle

of form, and, therefore, rather out of place in this classification. We have seen that in 1,000 years from the publication of the *Shao Wen* to Cheng's History, about 12,000 phonetic characters were produced. In the following 600 years, from Cheng to K'ang Hi, about 18,000 were added, and from K'ang Hi to the present year we may guess at 8,000 to 10,000 more. Now the legions of scientific book translators are exhausting all Chinese and Western resources to swell the number of phonetic characters, if not to a million certainly to beyond a hundred thousand, before the last bell of this century shall have chimed. Then the end will come ! if not of the world, certainly of such extravagant industry.

CHINESE PHONETIC WRITING : ITS RESULTS FOR
GOOD AND EVIL.

We have already stated, that with the invention of phonetic writing a new period began in China, not only in writing, but also in history. The Chinese mind loosened somewhat, though it could not altogether shake off, the narrow fetters of pictorial writing, and began to soar on its wings. The great classical period, of which Confucius is the centre, was the immediate result. The ancient memoranda were collected and revised, commentating began, standard works on moral philosophy were written, digests appeared of teachings on political economy, on the military arts, on the theory and practice of medicine, and on other practical subjects. But it seems that the Chinese mind exhausted nearly all its resources in its classical period. Scarcely any productive power is shown thereafter during so many generations to the present day. There is a deal of reproduction, of collecting of old materials, and, alas, of much old rubbish, of commentating, and of antiquarian

research, but the ideal of everything is looked for and found in *sayings* of the classical period. The introduction of Buddhism had little effect, and all efforts to infuse new life into fossilized forms by means of Western science, which have already been going on for three hundred years, have increased confusion and cannot have any other result in the future. New characters and new combinations of characters have to be coined in such numbers that translators find it already more convenient to leave unnoticed what predecessors have done and invent their own terms. Chinese written characters can by the phonetic method certainly be increased to hundreds of thousands, we may even say *ad infinitum*. But of what use is writing when other people are unable to read what is written? Writing can communicate my thoughts to other persons only when they attach the same meaning as I do to the visible signs put in their hands. We cannot here enter into a discussion of the *principles of education* and of the *methods of teaching* which are in close connection with this subject, but may refer to another point. In the *Chow Li*, xxxviii, 26, under the department of the Ta Hing Jen (大行人), who had to receive strangers of the first and second rank paying visits to the Court, a regulation is mentioned, that every seventh year the interpreters were to be summoned to report on the language and fix the form of addresses (諭言語協辭命); and every ninth year the blind [music-masters] and the secretaries were to be summoned to report on the written characters and fix their pronunciation (諭書名聽聲音). If this regulation had been carried out, a standard of writing and of pronunciation would have been the result. It is a painful sight to an intelligent observer to notice the present confusion of Chinese written characters and the toil it causes to millions of people, with immense waste of time and energy to the nation. We are convinced that the present slow progress of China, even the impossibility

of any more rapid movement is to be found in its system of education based on these confused masses of written characters. We are further convinced by the application of established principles of political economy, that this Chinese mode of writing implies a loss to China of hundreds, if not thousands, of millions of dollars a year. We are, moreover, satisfied that Chinese writing and cultivation of Western science cannot possibly go hand-in-hand. Chinese writing in phonetic-pictorial characters should be used exclusively as an excellent means of communication between merchants, and also by officers of government in their proclamations and notices to the people. It might be improved upon and become a *Universal Mode of Writing* in those limited branches, probably better than Volapük. This subject, however, is beyond our present scope.

PERIOD OF PICTORIAL WRITING, OR PRIMARY PERIOD.

The phonetic principle, as already mentioned, never gained exclusive control of writing in China. It became one element, and soon enough a very important element, but it remained attached to the ancient pictorial writing. This is the peculiarity of Chinese writing. It is not a phonetic system depending on articulate sounds only, but a combination of a new method, indicating pronunciation, with an older method, indicative of figures of things. All the written characters (primitives) used by the phonetic method, to indicate the pronunciation of words, were in existence and in circulation before phonetic writing began in China. These phonetic elements or primitives consequently represent an earlier period of writing. All characters which contain no indication of sound in their

formation belong to this class. As we have found that the phonetic period of writing began during the Chow dynasty, between 1200 and 800 B.C., we get for the earlier period, *i.e.* for Pictorial, or rather Ideographic, Writing, an indefinite time before these dates. Though many characters have changed their forms so much in the course of time that their original shape is no longer recognizable, we can easily convince ourselves that no character once in general use could have been lost. This means, that every character of ancient pictorial writing that was in use more than 3,000, perhaps 4,000, years ago is still preserved in the Chinese written character of the present day.

Leaving alone the phonetic class and directing our attention to the earlier period of writing, we again discover without difficulty two distinct periods of pictorial writing. The first and earliest must have been the formation of certain simple figures, primary characters, which I shall call "Elementary Characters." They form the basis of all Chinese written characters, and are of a limited number, only about a hundred. It is possible that a person called somewhat like *Tsing Hieh* made the first attempt at writing such characters about 4,000 years ago, but other persons must have followed in his line. After the inventors had produced as many elementary characters as they conveniently could, and when the need of expressing more in writing was felt, the period of manipulating them, *i.e.*, of modifications and combinations, began. This is the period of the formation of secondary characters. The elementary characters are analogous to the roots of other languages; all secondary characters are derivations. These secondary characters, which I call ideographic, combine three groups of the Six Scripts into one. We are, however, not sure that all ideographic characters found in K'ang Hi's Dictionary have originated in the time before 1200 B.C., some may be much later. I should accept as ancient primitives only such as entered

the list of phonetics as early as the time of the *Shwoh Wen*. Their use in the *Shwoh Wen* is a proof that such modifications, or such combinations, were already recognized in their meaning and pronunciation some time before the *Shwoh Wen* was written. We have now, as the result of our investigations, three important facts:—(1st). That all the written Chinese characters form three layers—a primary of elementary characters, a secondary of ideographic, and a tertiary of phonetic characters; (2). That the tertiary, or last formation, far outnumbers the other two; (3). That all Chinese literature, without even one exception, belongs to the tertiary period.

PERIOD OF IDEOGRAPHIC CHARACTERS, OR SECONDARY PERIOD.

Ideographic writing may have been in use for several centuries, perhaps even for ten or fifteen centuries. We are unable to determine the length of its reign as we have no reliable facts to guide our reasoning. We are, however, quite sure that such a period existed, and that there must still be remnants of it in the form of inscriptions in stone and in metal. If excavations were begun and scientifically prosecuted in China as in Egypt and other ancient countries, we might soon get plenty of materials to shed light on the prehistoric period of China. The only accessible mine open to the study of ancient Chinese writing since A.D. 100, is the dictionary *Shwoh Wen*, already referred to. We may suppose that in the *Shwoh Wen* all ideographic characters still in currency at the time became incorporated. It is even most probable that no ideographic character was allowed to be forgotten, because the Chinese phonetic system was not at all inimical to such forms, and ideographic writing is more pleasing to human fancy, and cannot be forgotten as easily as other forms

of writing. Though the *Shao Wen* furnishes plenty of materials, yet we have to deplore one serious deficiency. All the ideographic characters are isolated; we do not find a sentence composed of such characters. It may be that a few such sentences are incidentally contained in the *Shao Wen* or in other ancient writings, but we have so far not had the good fortune to discover them. A discovery of that kind would be of great interest in several respects. A complete list of all ideographic characters would also be of value, and might be the preliminary step to more important discoveries.

We can give here only a few examples of simple forms. The ninth classifier 人 is meant as a representation of "man." The ancient figure 𠤎 is not much better, though useful in tracing the different derivations. This figure of man 𠤎 turned round in this way 𠤎 is the twenty-first classifier, now written 匕, meaning "a spoon," perhaps originally "fed with a spoon." When put on its back (𠤎) it becomes classifier 44—a corpse—now written 尸. When put on its head (𠤎)—hands and feet turned up and decomposing—it means "change," now written 化. The same turned round (𠤎) means "self-destruction," now written 殄. Then we find a simple line added, as in classifier 34, present form 𠤎, ancient form 𠤎—a man's two legs pushed on from behind—slowness. The same reversed (𠤎)—a man using all the power of his legs—wide steps, overstriding—now written 跨. Further we find 久—representing a man driven on from behind, therefore, enduring, continuing—now = 久. The classifier 35 𠤎, old style 𠤎, represents a man calmly walking, dragging a staff.

There are a still larger number of combinations with other simple figures. For example, 𠤎—a man under shelter, reduced to straits, inclining—now written 仄 or 側. Then the reverse of it 𠤎, now written 丸—to turn round. 𠤎, now 𠤎, from "man" and "a burden"—a man carrying a burden,

fatigued. 𦣻, now 貌—countenance, from “face” and “man.” 見=見, classifier 147—to see and already reach it; from “eye” and “man.” 見=見, classifier 138, is the reverse of the former—to see again and again (probably without being able to reach the object). 兒=兒, from “head with bones not yet closed” and “man”—a new-born child. 頁=頁, classifier 181, from “head” and “man”—a head-man. 𦣻=與, from “mortar” and “man”—the momentary rest in working at the mortar; a moment. 𦣻=向—two men making compliments with their hands one to the other—face-to-face. 日=旦, from “sun” and “one” (i.e., horizon)—the rising sun. 日=易, the sun and moon rising and setting—to alternate, exchange. 日=易, the male principle (the sun), the mate of the female (the moon). 日=日, the light of the sun and moon united—splendid, bright. 日=晴, from the moon and a star, clear sky—because they are seen after rain. 日=果, the sun seen above the trees—bright. 日=東, the sun seen in the midst of trees—east. 日=杳, the sun seen under trees, indicating the evening near sunset—obscure. 日=晶, three suns—the brilliancy of crystal or gems. 日=日, the sun sinking into the ocean and becoming lost to vision; total loss (*Untergang*).

In order to show the difficulty of analysing some of the complicated characters, one example may suffice. The character 響 (*hiang*) means “a noise.” It is composed of the classifier 180—sound—and the phonetic *hiang*, meaning “village.” The character itself thus belongs, as a phonetic, to the tertiary period. Its component parts, however, both belong to the secondary or ideographic period. 鄉 is from 邑, classifier 163, also written 邑, and this is repeated back-to-back, as 乡 is nothing but 邑 turned round in ancient writing. 邑 is composed of 阝, classifier 31—an enclosure, and 邑, classifier 26—a seal—referring to the patents given to feudal princes. The middle portion of the character, 皇 is read *p'ei* and composed of 白—white, and 匕—a spoon.

K'ang Hi explains it by "fragrant grain," "fragrance," "one grain." Thus we arrive at the original meaning of this ideographic combination of primitives—a space between two towns, filled with the fragrance of meals from both sides. The classifier 音 of the character under examination is composed of 言—words, placed over 含—to hold in the mouth; both these characters are contracted or amalgamated. 言 is composed of 口—mouth, and 辛, old form for 愆—crime. 辛 is composed of 干—a shield and 一—one. 含 is from 口—mouth, and 今—now, above it. 今 is formed of 亼—men, coming into 一—one place (=集—collected together) and 及—up to, contracted. 及 is composed of the classifier 29 (又)—hand or having, and 人—man, which means, to follow a man till he is taken. Thus we are brought into a meeting of rioters where rebellious speeches are delivered till the arm of the police reaches the culprits; the noise is, of course, like that of a yelling Chinese mob, resounding from the hills—that is "sound" in Chinese ideographic writing, and has become the classifier for all noises, and even of softer voices, in the Flowery Kingdom.

This one example may suffice to show that for an analysis of Chinese ideographic characters their present form is useless, and their most ancient form is required. Even ancient forms are not in every case perspicuous, therefore a dangerous field is left to imagination: contractions are supposed to have taken place, which may be referred to a dozen or more different characters.

THE CLASSIFIERS.

Another difficulty we meet with in analysing Chinese written characters is caused by the classifiers. They only came into use in, and were necessitated by, the tertiary or phonetic period of writing. There was no need of classifiers in the secondary or ideographic period; the picture explained, or at least indicated, its own meaning. As soon, however, as an isolated sound was conveyed to the reader, he had to receive some more help, as the monosyllabic character of the Chinese language and the limited number of syllables available compelled people to use one and the same syllable to convey different meanings. A glance into any syllabic dictionary will suffice to show the necessity of an addition of classifiers to the phonetics. The classifier then helped to arrange all known characters in the dictionary. But as in the formation of tertiary characters no systematic idea guided the adoption of any character to be used as a primitive, so also no scientific method assisted afterwards the dictionary-makers to select the most significant element of each compound character as its classifier. There are difficulties especially in regard to the ideographic characters which also had to be put under classifiers. The *Shuoh Wen* is the first attempt of this kind we know of, and has kept its ground to the present day. Though K'ang Hi's arrangement under 214 classifiers is an improvement on the *Shuoh Wen* with its 540, still there is room for further improvement. The number of classifiers should be no more than about one hundred, which could be managed without serious difficulty. Mr. WADE considers 47 classifiers as obsolete. As we have, however, already called attention to this point (p. 157), two illustrations will suffice for our purpose. Take,

for example, the common character 眞—true; you will naturally first try to find it under the classifier 人 (10), but find yourself disappointed; you then try 匕 (21), with the same result; and will at last discover it with astonishment under 目 (109). Of another kind is the character 靈—intelligence. This is found under the classifier 雨—rain. The remaining part of the character is not a phonetic, but has to be explained ideographically—sorcerer and three months, i.e., three sorcerers praying for rain. In the *Shiroh Wen*, 巫 (sorcerer) is classifier, the remaining portion of the character is then phonetic 靈 = 零 (*ling*)—a gentle rain—and the explanation is, a sorcerer producing rain by offering gems to the gods. As, however, the character 巫 is no longer used as a classifier, the best choice between 雨 (173) and 口 (30) was certainly the first. Rain is regarded as the result of the magical power of sorcery.

THE ELEMENTARY CHARACTERS.

We have already noticed that the secondary period of writing was ideographic, and that each ideographic character was either a transmutation of a simple character previously in existence, or the combination of two or several of such simple characters into one compound character. This compound character had, as a rule, a different pronunciation as well as a different meaning from any of its component parts. Wherever one part has the same pronunciation as the whole, we cannot be sure that such character does not belong to the tertiary or phonetic period.

We have also to take into account that the classifiers, though all of them in existence during the secondary period, are not all simple characters, but that some are compound, even in a

very complicated way. Still, almost all elementary characters, with very few exceptions, such as 丁—mil, 丹—red, etc., are contained in the present list of 214 classifiers. If they contained such elementary characters *only*, the term “radicals” would be very appropriate, as pointing to the root or origin of written characters. But as more than one-half of their number are not roots, but derivatives, we cannot call them radicals. For this reason the term “radicals” is not used at all in this paper. It might be employed to designate such characters as form simple figures not reducible to a simpler form, but it seemed better to call them “elementary” characters, in order to avoid any confusion. The elementary characters are all simple characters, which may form elements of other (compound) characters, but they themselves do not contain any other element; they are figures pure and simple. Most of our readers will be greatly astonished to learn that the number of such elementary characters, out of which the 50,000 Chinese characters of modern times have been developed, is not more than about 100. We cannot give the exact number, as some apparently simple characters remain doubtful. Some meaningless characters, such as classifiers 8, 11, 23, and a few mere strokes, such as classifiers 2 and 4, of which the *Shuoh Wen* has about a dozen, we may leave out of consideration without making any excuse. Somewhat of a difficulty, however, are—

THE SIGNS FOR NUMBERS AND THE CYCLICAL CHARACTERS.

Four characters designating numbers are still among the classifiers (1, 7, 12, 24), i.e., the characters for the numbers one, two, eight and ten. In the *Shuoh Wen*, all the signs of numbers, from one to ten inclusive, are used as classifiers. These figures for numbers seem simple figures, and are certainly very ancient, perhaps more ancient than most of the

ideographic characters, but, as they are not figures of objects, we have to regard them also as ideographic. Numbers are abstractions, not real things, and as abstractions they cannot belong to a primitive period of human history. As most of the signs for numbers, for example 五, 六, 七, 八, 九, 十, 百, remain inexplicable from Chinese sources, we suppose that they were adopted by the ancient Chinese from somewhere else, probably from Western countries. The same opinion we venture to express in regard to the cyclical characters, *i.e.*, the ten stems and the twelve branches. We doubt much that the second stem 子 (*tsz*) and the classifier 39 were originally identical, as they appear now. All Chinese explanations are unsatisfactory and leave the subject in greater obscurity. Why came there in use two parallel lines of numbers from one to ten, as the ten stems and the symbols for the first ten numbers? To what phenomena in nature do the twelve branches refer? to the twelve months of a year, or to the returnings of *Ursa major*, as a passage in the *Li-ki* indicates? Chinese tradition mentions that *Tu Nao* (大撓), a minister of the Yellow Emperor, was the inventor of the cyclical characters. Even this statement leaves undecided the question whether he was regarded as the original inventor of the symbols, which are also ascribed to the Heavenly Majesty (*see below*), or merely as the combiner into sixty of the already existing characters in the ten and twelve lists, so as to give separate marks to each member of a period of sixty.

THE ELEMENTARY CHARACTERS IN NATURAL GROUPS.

Though we cannot yet construct a complete list of elementary characters, nor can we expect, for obvious reasons, to see such a list finished before the end of this

century, still we venture to proceed with our materials, in the conviction that all future additions will only amount to a very small number, and that none of them will be of such importance as to endanger our conclusions. The numbers refer to K'ang Hi's list of 214 classifiers.

TABLE OF ELEMENTARY CHARACTERS IN NATURAL GROUPS.

GROUP I.—*Relating to MAN.*

(Total 23 Characters.)

*The characters marked * are not included in the number of 214 classifiers. This list contains 14 such characters, some of them of rare occurrence.]*

Meaning.	No.	Modern Form.	Ancient Form.	Canton Pronunciation.	Mandarin Pronunciation according to Dr. Williams	Ancient Pronunciation according to Dr. Edkins.
(1.)—To the HUMAN BODY:—						
Body ...	158	身	𠂔 or 𠂔	,shan	shān	shin
Head ...	185	首	𠂔	shau	sheu	shut, dut
Eye ...	109	目	𠂔, 𠂔	muk	muh	mok
Ear ...	128	耳	𠂔, 𠂔	yi	'rh	nip
Nose ...	132 (209)	自	𠂔	pi (tsz)	pi (tsz)	zi, bit

Meaning.	No.	Modern Form.	Ancient Form.	Canton Pronunciation.	Mandarin Pronunciation according to Dr. Williams	Ancient Pronunciation according to Dr. Edkins.
Mouth ...	30	口	𠂔	han	k'eu	k'ü
Whiskers ...	126	而	𦍋	yi	'rh	ni
Front teeth ...	211	齒	𪔐	ch'i	ch'i	ti
Shoulder ...	28	厶	乙 (= 臑)	sz'	sz'	se
Arm and fist ...	64	手	𠂔, 𠂔	shan	sheu	shok
Hand ...	29	又	又, 又	yuu	yin	ik
Sinews ...	19	力	𠂔, 𠂔	lik	lih	lik
Heart ...	61	心	𠂔	sām	sin	sim
Belly ...	49	己	弓	ki	ki	ke
Womb ...	20	勺	𠂔	pau	pao	pok
Hip (knee?) ...	60	𠂔	𠂔	ch'ik	ch'ih	t'ik
Foot ...	77	止	止, 止	chi	chi	tik

(2.)—To HUMAN SOCIETY:—

Male (man) ...	9	人	𠂔	yan	jān	nin
Female ...	38	女	𠂔	nui	nü	nok
Child (son) ...	39	子	𠂔	tsz'	tsz'	tsak

Meaning.	No.	Modern Form.	Ancient Form.	Canton Pronunciation.	Mandarin Pronunciation according to Dr. Williams	Ancient Pronunciation according to Dr. Edkins.
Chief? ...	37	大	𡗗, 𡗘	tai	ta	da
Minister? ...	131	臣	𡗗, 臣	shan	ch'an	din
Family? ...	83	氏	氏, 氏	shi	shi	zhi

GROUP II.—*Relating to ANIMALS.*

(Total 29 Characters.)

(1.)—To LIVING ANIMALS:—

Horse ...	187	馬	𠂔	ma	ma	mo
Cow, cattle ...	93	牛	𠂔	ngau	niu	ngu
Sheep ...	123	羊	𦍋	yeung	yang	dung
Pig ...	152	豕	豕, 豕	chi	shi	shi
Dog ...	94	犬	犬, 犬	hūn	k'üen	k'on
Deer ...	198	鹿	麋	luk	luh	lok
Rabbit ...	•	兔	兔	tó	t'n	t'o
Tiger ...	141	虎	𧆦, 𧆦	fu	hu	ko
Crawling beast ...	153	豸	豸	chai	chai	dza
Rodentia ...	208	鼠	鼠	shū	shu	sho

Meaning.	No.	Modern Form.	Ancient Form.	Canton Pronunciation.	Mandarin Pronunciation according to Dr. Williams	Ancient Pronunciation according to Dr. Edkins
Long-tailed bird ...	196	鳥	𪇧, 𪇨	niu	miao	nio, tok
Short-tailed bird ...	172	隹	𪇩	chui	chui	tok
Laughing bird ...	*	鴝	𪇪	t's'euk	t's'ioh	t's'ok
Crow ...	*	烏	𪇫	u	wu	a
Tortoise ...	213	龜	𪇬	kwai	kwai	ku
Large snake ...	*	巴	𪇭	pa	pa	po
Toad (frog) ...	205	黽	𪇮, 𪇯	nan	min	min
Small animal ...	142	虫	𪇰, 𪇱	ch'ung	ch'ung	dong
Fish ...	195	魚	𪇲	yü	yü	ngo
Cowry ...	154	貝	𪇳	pui	pui	pi

(2.)—TO PARTS OF ANIMALS:—

Pig's-head ...	58	豕	𪇴	kai	ki	—
Hair ...	59	彡	𪇵	shām	san	sham
Claws ...	87	爪	𪇶, 𪇷	ch'au	chao	tok
Molar tooth ...	92	牙	𪇸, 𪇹	nga	ya	nge

Meaning.	No.	Modern Form.	Ancient Form.	Canton Pronunciation,	Mandarin Pronunciation according to Dr. Williams	Ancient Pronunciation according to Dr. Edkins.
Wings (plumes) ...	124	羽	羽, 翮	yü	yü	yo
Veins of tortoise-shell ... }	25	卜	卜, 𠂔	puk	puh	pok
Silk (floss) ...	120	糸	糸	mik	mih	mik
Flesh ...	130	月 (肉)	𠂔	yuk	juh	niok
Raw skin ...	177	革	革	kak	koh	kak

GROUP III.—*Relating to PLANTS.*

(Total 4, excluding two doubtful.)

Sprout ...	45	𦵏	𦵏	ch'it	ch'eh	t'et
Ripe grain standing in stakes * }	210	齊	齊	ts'ai	ts'í	dze
Cucurbitaceæ ...	97	瓜	瓜	kwa	kwa	ku
Bamboo ...	118	竹	竹, 𦵏	chuk	chuh	tok
Tree (wood) ...	75	木	木	muk	muh	mok
Splinter, tree cut in two * }	91	片	片	p'in	p'ien	p'in

* Ideographic.

GROUP IV.—*Relating to INANIMATE NATURE.*

(Total 21 Characters.)

Meaning.	No.	Modern Form.	Ancient Form.	Canton Pronunciation.	Mandarin Pronunciation according to Dr. Williams	Ancient Pronunciation according to Dr. Edkins.
Sun ...	72	日		yat	jih	at
Moon ...	74	月		yüt	yueh	uget
Earth, soil ...	32	土		tó	tu	to
Air ...	84	气		hi	ki	k'ut
Clouds ...	*	雲		wan	yun	gon
Rain ...	173	雨		yü	yü	yo
Water † ...	85	水		shui	shui	shui
Streams † ...	47	川		ch'ün	ch'wen	ron
Ice ...	15	冰		ping	ping	pang
Fire ...	86	火		fo	hwo	ha
Mountain ...	46	山		shan	shan	shan
C'li'ff, dwelling ...	27, 53	厂, 广		hon, yim	han, yen	gan
Gem ...	96	玉, 王		yuk	yuh	ngok

† Probably the same.

Meaning.	No.	Modern Form.	Ancient Form.	Canton Pronunciation.	Mandarin Pronunciation according to Dr. Williams	Ancient Pronunciation according to Dr. Edkins.
Veined gem ...	67	文		man	wān	mun
Red stone ...	*	丹		tān	tan	tan
Protuberance of the ground }	*	凸		tat	tiéh, tuh	tot
Indentation of the ground ... }	*	凹		āu	ngao, ao	ok

RESULTS OF HUMAN LABOUR ARE:—

Mound of earth (?)†	170	阜. 𡵓		fan	fen	pu
Field ...	102	田		t'in	t'ien	din
Salt-land ...	197	鹵		lò	lu	la
Divided fields ...	*	井		tsing	tsing	tsing

GROUP V.—*Relating to PRODUCTS OF HUMAN INDUSTRY.*

(Total 28 Characters.)

(1.)—WEAPONS:—

A knife, sword ...	18	刀. 刃		tó	tao	to
Shield ...	51	干		kon	kan	kan
Bow ...	57	弓		kung	kung	kong

† Derivative of classifier 46?

Meaning.	No.	Modern Form.	Ancient Form.	Canton Pronunciation.	Mandarin Pronunciation according to Dr. Williams	Ancient Pronunciation according to Dr. Edkins.
—	—	—	—	—	—	—
Arrow (with string)	56	弋	𠂔	yek	yih	ik
Halberd (spear) ...	110	矛	𠂔	mán	men	mu
Javelin (arrow) ...	111	矢	𠂔, 𠂔	chi	shi	shi

(2.)—INSTRUMENTS:—

Axe or hatchet ...	69	斤	𠂔, 𠂔	kau	kin	kin
Compass and rule .	48	工	𠂔, 𠂔	kung	kung	kong
Carving instrument	*	𠂔	𠂔	k'ai	k'i	—
Mortar ...	134	臼	𠂔, 𠂔	k'an	kin	gu
Nail ...	*	丁	𠂔	ting	ting	tang
Dry measure ...	68	斗	𠂔, 𠂔	tau	teu	tu

(3.)—UTENSILS:—

Tiles, bricks ...	98	瓦	𠂔, 𠂔	uga	wa	nge
A dish, platter ...	108	皿	𠂔, 𠂔	ming	ming	min
Wine-jar (earthen-ware) ... }	121	缶	𠂔, 𠂔	fan	feu	fu
Bench, low table ...	16	几	𠂔, 𠂔	ki	ki	ke

Meaning.	No.	Modern Form.	Ancient Form.	Canton Pronunciation.	Mandarin Pronunciation according to Dr. Williams	Ancient Pronunciation according to Dr. Edkins.
Wooden trencher } (plate) ... }	151	豆	豆, 𣎵	tau	teu	du
Tripod ...	206	鼎	鼎, 𣎵	ting	ting	teng
Incense-cauldron...	193	鬲	鬲	lik	lih	lik
Bottle for fra- } grant spirits... }	•	卣	卣	yan	yin	—
Wicker basket † ...	•	籩	籩	tsz	tsz	—
A one-leafed door .	63	戶	戶, 戶	wu	hu	gu
A window ...	•	窗	窗	ch'ung	chang	t'song
Inclosure ...	31	口	口	wui	hwui	gu
A wheeled carriage	159	車	車	kü	kü	ko
Bout ...	137	舟	舟, 𣎵	chau	cheu	tu

(4.)—CLOTHING:—

A head-cover ...	14	冃	冃	mik	mih	mik
Embroidery ...	204	黼	黼	chi	chi	te.

† Of bamboo, perhaps originally a bamboo-jungle.

THE ORIGINAL FORMS OF THE ELEMENTARY CHARACTERS.

That the modern forms of Chinese characters are different from the ancient forms preserved in the *Shwuh Wen*, needs only to be mentioned. The Small Seal characters of the *Shwuh Wen*, again, being about 900 years later than Chow's work on the Great Seal characters, differed so much from these, that scholars well acquainted with the later form could not make out the older. There was an interminable controversy going on in China for several hundred years. It was about two different texts of some of the ancient Classics. The first was written in characters used at the time, the Small Seal, by an old scholar, Fuh-sang. Another scholar, K'ung Gian-kwo, proclaimed afterwards the discovery of another set of books in a wall of Confucius' house. This was in ancient characters, tadpole style, and could only be deciphered by the help of Fuh-sang's books and other resources. (See LEGGE, *Chinese Classics*, III, 1, p. 22). This statement is certainly false. Confucius and his disciples wrote in the Great Seal characters, the ancient tadpole writing being altogether out of the question. But it may be that the handwriting was illegible (*tadpole*), being, perhaps, the hasty copy of a scholar who made it for his own use to assist his memory when lecturing to his pupils. Another discovery of ancient tablets was made in a grave in A.D. 279. They had been buried for 595 years (LEGGE, p. 106). As they are said to have been written in the Small Seal character, which was invented 90 years after the supposed burial of those tablets, we see how unreliable such statements are.

The discovery of the so-called "Tablet of Yu," in the 13th century A.D., about 3,500 years after its supposed origin, LEGGE (*Chin. Cl.*, III, 1, p. 73 ff.) calls "a romance," with which

I agree for brevity's sake [compare, however, the last section of this paper]. In some editions of the *Sie Scripts* a great variety of ancient forms of characters is collected, but most of these forms are fanciful, and not original. I think, however, that most elementary characters are simple enough, even in the Small Seal form. The original form was certainly nothing but a crude outline of the figure of its object. Of all editions of the *Sie Scripts* one entitled 六書分類, mentioned before, I found most useful. As of many different forms of characters, that of the *Shuoh Wen* is always put first, it seems to indicate that the author considered it the most ancient form of all he could find. There are in circulation a large number of native works on the Antiquities of China, some of them beautifully illustrated. They also contain inscriptions in various forms of ancient characters. Some of them are attributed to periods even before the Chou dynasty, to the Hia and Shang dynasties, 2200-1200 B.C. There is, however, no foundation whatever for such assumption. Chinese authors are too much influenced by their well-known tendency to attach the utmost antiquity to any old relic of uncertain date. Most of the inscriptions in question are written in characters which are apparently but variations of the Small Seal characters. This fact proves that they are not older than the Han dynasty and some of them may be of a still more recent date. We also know of many counterfeits of old things. The trade in relics of antiquity—old cash and porcelain included—is too remunerative not to tempt the ingenuity of artisans. A good museum of articles of Chinese antiquity, where one relic could be compared with a number of other articles of the same period, and one period with other periods, is necessary for satisfactory research. Mere descriptions are insufficient, even when accompanied by drawings.

Thus we have to state, as the result of our examination of the subject, that the Small Seal characters of the *Shuoh Wen* are

the most ancient forms of Chinese written characters accessible with certainty at present, of more ancient forms nothing reliable being known. [Compare the remarks on the "stone drums," on a later page.]

THE ORIGINAL PRONUNCIATION OF THE ELEMENTARY CHARACTERS.

Speech was before writing. All the elementary characters are pictures of objects known to the people and named by the people long before an attempt was made at writing. We may even suppose that speech had already had a history, had passed through changes of sounds and of grammar (construction of sentences). As we have to place the formation of the elementary characters before 1200 B.C., we may say with confidence that the pronunciation of those characters, *i.e.*, the spoken language which their pronunciation represents, must belong at least to the time about 2000 B.C. Neither the elementary nor the ideographic characters, however, indicate in the least a pronunciation, and nothing else is known of that remote age. The case seems hopeless. But there are two ways still open for approaching its solution. One is by examining their use as phonetics (primitives), the other by comparing the ancient rhymes. Though by the rhymes we can only get the final, including the vowel, but never the initial, yet we can find the initials by means of the character's use as a phonetic. The phonetics as such, taken separately from the classifiers, have never been made a subject of study by [native] Chinese scholars. A good deal of attention, however, has been paid to rhymes. The phonetics had no practical interest for the Chinese, but the rhymes had, for writing poetry and gaining

honors. The *T'ang yün* (唐韻) is the earliest dictionary arranged according to tones and final sounds still in existence. It was first published in 750 A.D., but is based on an earlier work—*Ts'ie yün* (切韻), of the Sui dynasty, 589-618 A.D. All characters are arranged under 206 finals. The *Kwang yün* (廣韻) and the *Tsi yün* (集韻), published in the Sung period, followed the same arrangement. The finals were reduced to 160, and the initials to 36, which made their first appearance in the *五音集韻* during the Kin dynasty, 1115-1234 A.D. Many other varieties of the same system may be found mentioned in WYLIE's *Notes*.

One modern work of this kind, however, which is almost universally used among the Chinese, deserves more attention. I refer to the *Wu fang yuen yin* (五方元音) by Fan Tang-fung (樊騰鳳), first published in 1710, followed by a revised edition in 1810. All finals (韻) are reduced to 12 categories:—(1), 天, *ien*, *in*, *ân*; (2), 人, *in*, *ân*, *âm*; (3), 龍, *ung*, *âng*, *ing*; (4), 羊, *âng*, *ong*, *iâng nang*; (5), 牛, *in*, *an*; (6), 婆, *ân*, *on*, *iân*; (7), 虎, *u*; (8), 駝, *u*; (9), 蛇, *ie*, *e*; (10), 馬, *a*; (11), 豺, *ai*, *iai*, *ai*; (12), 地, *i*, *ni*, *â*, *ô*. Of initials (字母) only 20 are used:—(1), 柳, *p*; (2), 飽, *p'*; (3), 木, *m*; (4), 風, *f*; (5), 斗, *t*; (6), 土, *t'*; (7), 鳥, *n*; (8), 雷, *l*; (9), 竹, *ch*; (10), 虫, *ch'*; (11), 石, *sh*; (12), 日, *y*; (13), 剪, *ts*; (14), 鵠, *ts'*; (15), 糸, *s*; (16), 雲, *j*; (17), 金, *k*; (18), 橋, *k'*; (19), 火, *h*; (20), 蛙, *w*. Of these, Nos. 2, 6, 10, 14 and 18 are merely aspirates.

The ancient rhymes have been particularly examined by prominent modern scholars. Ku Yen-wu (顧炎武) (MAYERS, 281) A.D. 1613-1682, reduced all the rhymes of the *Book of Odes*—i.e., of China before Confucius—to ten, without reference to tones. They are (1), *ung*, *iung*; (2), *i*, *ui*, *ni*, *âh*, *uh*, *ah*, *eh*, *ih*, etc.; (3), *â*, *an*; (4), *au*, *on*, *un*; (5), *in*, *en*; (6), *o*; (7), *ang*; (8), *âng*, *ing*; (9), *âng* ?; (10), *am*, *om*, *im*.

Kiang Yung (江永), 1680-1762, divided Nos. 4, 5 and 10 into two each, thus distinguishing altogether 13 finals. Twan Mow-t'ang (段茂堂), same as Twan Yü-ts'ai (MAYERS, 694), A.D. 1735-1815, distinguished 17 finals:—(1), *e*; (2), *eo*, *iau*; (3), *in*; (4), *au*; (5), *u*; (6), *au*; (7), *im*, *ip*; (8), *am*, *ap*; (9), *ung*; (10), *ang*; (11), *ing*; (12), *in*, *it*; (13), *un*; (14), *an*; (15), *ei*; (16), *i*; (17), *o*. He also distinguished three tones observed in rhyming, thus really getting 42 rhymic endings. (LÉGGE, Vol. IV, p. 102 ff.)

These researches by eminent Chinese scholars, valuable as they are, show that the Chinese do not yet agree among themselves in regard to ancient pronunciation. They also exhibit one weak point, *i.e.*, they all take the *Book of Odes* as a work uniform in all its parts. This is mere fiction. The different odes were composed in different states of ancient feudal China, and the language of those states differed considerably; there are, besides, centuries between the dates of different odes. We know, further, that in rhyming a deal of poetical license is taken. Another work of the Han dynasty is still preserved, with the title *Fang Yin* (方言), by the famous Yang Hsiung (揚雄), which enters somewhat into the difference of the then existing Chinese dialects. But we should know the language, and especially the pronunciation of the Han period, spoken by Yang Hsiung. We go astray in attaching a modern pronunciation to the Chinese characters used by him and other writers of that period. Some transliterations of Sanskrit terms used in Buddhist translations made at the time may possibly help us out of the difficulty. As, however, I cannot at present give so much time to this subject as would be required to arrive at definite results, I think it wiser to pass it over. I, however, here acknowledge my obligation to Dr. EDKINS for kindly enriching the list of Elementary Characters with their ancient pronunciation. As Dr. EDKINS

has given many years of careful study to Chinese philological questions, his judgment in this line must be of great value to every Chinese student.

THE ELEMENTARY CHARACTERS AND COMPARATIVE PHILOLOGY.

The great importance of this list of Elementary Characters for researches into the prehistoric period of mankind may be illustrated by one example. I select from among the animals the *pig*, as the one found in almost every household all over China from the remotest antiquity to the present day. It is the most appreciated and popular of all mammalia among the Chinese. We know that the reverse is the case among Mahomedan nations. The Mahomedan aversion to the pig is, however, derived from the Mosaic prohibition. The law of Moses, though in other respects diametrically opposed to Egyptian usages, shows in its bearing on the pig a perfect agreement with ancient Egyptian practice. We are told by the best Egyptologists that the pig was not domesticated in the first period of Egyptian civilisation. (See *Die Anfänge der Cultur*, von FRANÇOIS LENORMANT). Egyptian religion regarded the pig as absolutely unclean; even an accidental touch of it subjected the unfortunate person to the strictest purification ceremonies. The pig was domesticated in later periods, especially in Lower Egypt, where foreign tribes had settled.

The ancient Egyptian language has two words for pig, the one—*rer*, Koptic *rir*—is apparently onomatopœic, an imitation of the voice of the pig, the other—*schaau*, Koptic *eschô*—is of foreign origin and is in close connection with the common

expressions for pig in the Arian languages. It is in Greek *σῦς*, *σῆς*; Latin *sus*, Anglo-Saxon *sūg*, Scandinavian *syr*, German *sun*, English *sow*, Swedish *so*, Gaelic, *suig*, Kymeric, *horeh*; Kornic, *hoch*, (English *hog*), Persic *schūk*, Armenic *chou*, Lithuanian *tehūka*, Russian *tehuschka*. The origin of these words may be discovered in the Sanskrit *çākara*—the animal that makes *çā*, which "grunts." Not without interest is the other fact that the Turanian languages derive their designations for "pig" from the same Arian root. In Finnish it is *ika*, Esthic *siqqa*, Tscheremissian *sūsua*, Baschkirie *zuska*, Telentic *schoschka*, Kirgisian *tehutchka*, Tshumaic *sysuu*, Samojedic *soia*. That the Chinese name *chi* or *chu* also belongs to this series needs no demonstration.

If we had a comparative table of the Turanian languages spoken at present, and their ancient pronunciations so far as they can be determined, we might probably discover in the ancient pronunciation of the elementary characters the connecting root of the diverging branches of the Indo-Chinese languages, and perhaps find also a key to the better understanding of the difficult Turanian family in its totality. It is only by methodical study of critically-sifted materials that we can hope to penetrate the darkness of China's remote antiquity. Superficial similarities are always misleading, and mere guesses, though some may be correct enough, cannot dispel doubt and obviate ridicule. There is yet another difficulty too much overlooked. We speak of the Chinese language as if it were the same all over China, and of ancient pronunciation as if there had been only one at any given time. But the fact is, that the differences in language of the various parts of ancient China were greater than at present. There was less mixture of the population, and intercourse was more limited. Further, there are sufficient indications that the people of Hia, of Shang and of Chow were different tribes, if not different nations, that invaded China. Many proper

names in ancient Chinese literature seem of foreign origin, as also some names of places. The language and traditions of the different aboriginal tribes, including Miaotsz, Lolos, Sifan and others, which may be regarded as remnants of the natives of ancient China, are as yet almost unknown. The thought that something could be learned from such sources has never entered the mind of a Chinese scholar, therefore the information obtainable from native literature amounts to nothing.

STATE OF PREHISTORIC CHINESE CIVILISATION REVEALED
BY THE ELEMENTARY CHARACTERS.

From the first group in the list given on p. 171 we learn that human society was already in a settled state. A chief was prominent in the community, and he had officers to support his dignity and carry out his orders. [The character for minister (classifier 83), however, remains somewhat doubtful.] The chief lived in organised family-connexions (clans); these became gradually important factors in Chinese history. All subjects, we may suppose, were considered as mere individuals. Every family- (or better, clan-) name of the Chinese can be traced back to some noble family of ancient China. The characters in the second group contain names for animals of all the great natural orders, and the principal kinds of domesticated animals are specially distinguished. This fact shows that the human mind was already conscious of its power over nature. It was a great step in civilisation to have brute creatures subdued and, by a kind of training, taken into the service of man. It is peculiar that sheep and goats were denoted

by one and the same character. The difference between these two kinds of ruminantia, especially in a wild state, is not so marked in mountainous districts; it may also be an indication that large herds of sheep were not held at the time. Species of wild sheep and goats have been discovered in the north-western provinces of China, as also some of the bovine kind. Wild horses can still be seen on the grassy plains of Tartary, but they may have galloped about the vast uncultivated portions of ancient China. Wild pigs are frequent in all parts of modern China, and the rearing of the domesticated kind is more extensively carried on here than in any other part of the world. Dogs are not only used as faithful guardians of dwelling-houses, but their flesh has been utilized as food from very ancient times. There are, however, indications in ancient Chinese literature that in those days the use of animal flesh [classifier 130] was confined to sacrificial ceremonies. Tigers are still the terror of the southern and middle provinces of China. Other animals of prey are expressed in the general term [classifier 153] "crawling beast." Of fish, the carp is the representative, which proves that the writers lived away from the ocean, else they would certainly have chosen some striking form of sea-fish. Which kind of shell is meant by classifier 154 cannot be determined now; it is probably not the common cowrie. A pig's head, with its snout turned up, is represented by classifier 58. This can be explained only by its use as a sacrifice. To religious usage also points classifier 25, the veins of the tortoise-shell, which were made visible by burning over fire, and served the purpose of divination. The skins of animals were already known to be of particular value. Long hair and feathers were also utilised. The produce of the silkworm was known as "floss-silk." Though the elementary characters give no indication of its use in weaving, still different kinds of silk-manufactures have been known in China from the remotest antiquity.

In the third group, relating to plants, we get only six characters, and even of these, two are better transferred to the ideographic class. Of the four remaining characters, two are of a very general meaning. The "sprout" is most characteristic of the vegetable kingdom; it may be taken as identical with "plant" or may be confined to all plants of the smaller kind, as herbs, grasses, etc. The other character, classifier 75, means "trees with a woody stem, wood," embracing almost all plants of a taller kind. We see that the common botanical distinction between trees and herbs had been noticed and fixed even in prehistoric times. That, however, among the thousands of different kinds of plants growing in China, only bamboo and melon were honoured with special elementary characters, must have been due to some special reason. What species of the cucurbitaceous order is really meant, whether a cucumber, a gourd or a melon, remains undecided, as the flora of the regions along the Yellow River is still insufficiently known. I think *melon* very probable, though the gourd was also known, according to very ancient records, and its hard skull was used as a vessel for drawing water and for similar purposes. The philosopher Chuang mentions one of immense size. We are, however, quite sure on one point, *i.e.*, that the inventors of Chinese writing had no idea that China would ever be called the "Flowery Kingdom!" The bamboo is the real emblem of China. As the greater mass of bamboo is never seen flowering in China, it is impossible to say how many species are growing in different parts of the country. Bamboo appears most luxuriant in the tropical and sub-tropical regions, becoming smaller and scarcer in the northern provinces, and does not reach the northern borders of China (being scarce even on the banks of the Yellow River). It has been used for every imaginable purpose, even from prehistoric times. It is also an article of food, for the bamboo-shoots give a wholesome and agreeable vegetable to myriads of people.

Bamboo-slips were used as perhaps the earliest writing materials in China, till paper was invented. Chinese paper also is made principally of bamboo-fibre. There can be no doubt China is the country of the bamboo!

Remarkable is the meagreness of this group compared with the second—comprising animals. I find in it an unmistakable proof that agriculture was less developed than the breeding of cattle at that time.

In the fourth group the absence of characters for planets and stars in general is conspicuous. Though some authorities give a character, formed of three dots, as the earliest representation of fixed stars, it soon became supplanted by a phonetic form, if it ever was authorised at all. *leieles* seem to have been of no unfrequent occurrence, and point to a regular winter-season, as we find it between the Yangtze and Hwang ho. The use of fire was known. As shelters against the inclemency of the weather, tents were not used, but overhanging cliffs, [27-53], which points to a mountainous district where rocks abound. This is confirmed by the very character for "mountain" [45]. There was, however, at least some level ground at the foot of the hills and in the valleys, which could be turned into cultivated fields, with channels for irrigation and drainage. The character for "divided fields," not used now as a classifier, but so given in the *Shueh Wen*, means a division of a piece of ground into nine squares of equal size. I prefer, however, the meaning of "a well" as the original one. It is as such the 48th diagram of the *Book of Changes*. [Only three of the 64 diagrams of the *I-king* are represented by elementary characters—the 48th, the 49th, *i.e.*, classifier 177, "a raw skin," and the 50th, *i.e.*, classifier 206, "a tripod" used for sacrificial purposes]. This digging of wells must have begun as soon as the people settled in fertile alluvial plains where the river was too far off or too muddy for culinary purposes. In

hilly districts in Europe wells are found more serviceable than pure springs and streams of flowing water at an inconvenient distance. The special character for "salt-land" indicates not the sea-shore, but some salt plain away in the interior. The vast ocean would certainly have received a peculiar character for itself, if the inventors had had the grand aspect before their eyes. Their notion of water was expressed by the form of mountain streams, not by the waves of the sea. The characters referring to "gems," 67 and 96, seem to presuppose some human workmanship—cutting, polishing, etc. "Red stone" means probably red sandstone used for building purposes, but it is commonly applied to cinnabar.

The action of the human mind on nature, or, in other words, *nature in the service of mind*, is already visible in Group I, in the characters for chief, minister, and family; and in Group II, in the characters for silk, flesh, skin, veins of tortoise-shell, pig's-head, and perhaps in hair and plumes. In Group III, we meet with a tree cut in two through its whole length. In Group IV there is mentioned the use of fire, of cliffs for dwelling-places, cultivation of fields, arrangement of salt-fields, digging of wells, cutting of sandstone and of gems. The human mind is seen in unceasing activity. Though nature is still prominent, it is made to serve human purposes; though the mind is still bound to nature, it nevertheless regulates the course of nature to a certain extent. The characteristic feature of Group V is not only a partial adaptation of natural objects to human wants, but a more or less complete change of their natural condition into an artificial shape. Nature furnishes only the materials, which by human ingenuity are wrought into such forms as are most suitable to human purposes. Thus the human mind assumes gradually dominion over the realms of nature by expanding the limited powers of the human body through the use of ever-improving instruments. Every instrument is the result of an invention,

and every invention is a victory of Mind over Nature. The weapons, mentioned in Group V, are such as were also in use among other nations in prehistoric times. Of domestic utensils the mortar was used to reduce grain to flour before the easier process of grinding by the millstone was discovered. The artisan's rule with a crosspiece at right angles at one end, the other cross-piece probably moveable to be used as a compass, indicates considerable progress in workmanship. Houses were already made more secure by doors and cheerful by windows. Benches to lean on when sitting on the covered floor added to personal comfort. Enclosures were made for the domesticated animals as a protection against the attacks of beasts of prey.

It having been observed that after the burning of fires a certain kind of mud became as hard as stone, this discovery was utilised to make bricks and tiles for building purposes. Another step was taken by manufacturing different kinds of household utensils of this waterproof material. We find already vessels used in eating, wine-jars (which implies that some sort of wine was prepared at the time), tripods for cooking and to offer sacrificial meat, incense-cauldrons (implying the preparation and use of fragrant materials). Working in wood was already so far developed that not only rough building was executed, but handy utensils for use on the table and in sacrificing were made. There were even vehicles for locomotion on water, and others for use on dry ground. It was no more a primitive state of civilisation when the ancient Chinese could boast of wheeled carriages and of boats as means of conveyance by land and by water. That wicker-work of bamboo, and perhaps also of grass and of other materials, was manufactured at this period is not surprising. We also find the first traces of fine arts in the instrument for carving wood. Carving was the beginning of ornamentation, embroidery (classifier 204)

combined figures and colours, therefore painting cannot have been unknown, as it is the precursor of embroidery. Thus we see even a practical people, as the Chinese are, exhibiting a sense of the beautiful.

That only two articles of clothing are mentioned may be explained by their use as marks of distinction between the different classes or ranks of society. It is also possible that classifier 145 was originally an elementary character, the figure of a suit of clothes, consisting in a lower garment or a pair of covers for the legs, and in an upper garment with a neckpiece and two sleeves. Towards the end of the Chow dynasty this character was used only for upper garments, called *yi*; the lower garments were called *shang* and represented by a phonetic character. As material for their garments the ancient Chinese had at their disposal skins [177], long hair of animals [59], feathers [124], and silk [120], possibly hemp also.

CHINESE RELIGION IN PREHISTORIC TIMES.

That the Chinese were not without religion, even in those early days, is shown by some of the elementary characters. It may be that the classifier of religious terms [113] belongs to this period, but as it is rather ideographic and could not be otherwise, referring to something invisible, I did not include it in my list. Certain it is that some of the vessels mentioned in Group V were only used for sacrificial purposes. The same must have been the case with the pig's-head [58], as the custom has survived to the present day.

It is not the place here to enter into a discussion of the deeper meaning of sacrificing. The very act demonstrates

that the human being acknowledges a higher personal power above him. The term *personal* is used deliberately, as it would be mere nonsense to offer a sacrifice to an impersonal force. The act of sacrificing also indicates that man considers the higher Being as capable of being influenced in his favour by such action, and is anxious to avoid divine displeasure.

Another unmistakable proof of Chinese religion at this early period is the character for "divination" [25]. By means of divination historic Chinese, just as their prehistoric ancestors did, inquire into the will of the Divine Being. Men must have felt their deep dependence on divine favour for the prosperity of their doings, so that in order to ensure success they first enquired about the divine will and pleasure regarding every undertaking of any importance, private or public.

Divination and offering of sacrifices have their Christian equivalents in doctrine and worship. They will for ever remain manifestations of genuine religious life. May its forms change ever so much, the two religious motives will remain unshaken: first, to learn the divine will; second, to seek divine favour.

CHINESE ACCOUNTS OF THE HISTORY OF THEIR EARLIEST CIVILIZATION.

As the *I-king*, or *Book of Changes*, is the highest authority for everything relating to human affairs among the Chinese, I shall begin with the few statements contained therein. In the Great Appendix (Part ii, Sect. ii; Dr. Legge, p. 382) we read, (1) that in ancient times Pao Hi (commonly placed in the 29th century, B.C.) invented—

a.—The eight trigrams.

b.—The knitting of strings into nets of various kinds for hunting and fishing.

(2) That Shin Nung (28th century, B.C.) fashioned wood to form the share, and bent wood to make the plough handle. The advantages of ploughing and weeding were then taught to all under heaven.

(3) That he caused markets to be held at mid-day, thus bringing together all the people, and assembling all their wares in one place. They made their exchanges and retired, every one having got what he wanted.

(4) That Hwang Ti, Yao and Shun (27th to the 23rd centuries, B.C.) simply wore their upper and lower garments [as patterns to the people], and good order was secured to all under heaven.

(5) That they hollowed out trees to form canoes; they cut others long and thin to make oars. Thus arose the benefit of canoes and oars for the help of those who had no means of intercourse with others. They could now reach the most distant parts, and all under heaven were benefited.

(6) That they used oxen [for carts] and—

(7) Yoked horses [to chariots], thus providing for the carriage of what was heavy, and for distant journeys, thereby benefiting all under the sky.

(8) That they made the defence of double gates; and—

(9) the warning of the clapper, as a preparation against the approach of marauding visitors.

(10) That they cut wood and fashioned it into pestles; they dug into the ground and formed mortars. Thus the myriads of the people received the benefit arising from the use of the pestle and mortar.

(11) That they bent wood by means of string so as to form bows, and sharpened wood so as to make arrows. This conferred

the benefit of bows and arrows, and served to produce everywhere a feeling of awe.

(12) That in the highest antiquity men made their homes [in winter] in caves, and [in summer] dwelt in the open country. In ages subsequent to these the sages substituted houses with the ridgebeam above and the projecting roof below, as a provision against wind and rain.

(13) That when the ancients buried their dead, they covered the body thickly with pieces of wood, having laid it in the open country. They raised no mound over it, nor planted trees around, nor had they any fixed period of mourning. In subsequent ages the sages substituted for these practices the inner and outer coffins.

(14) That in the highest antiquity, government was carried on successfully by the use of knotted cords [to preserve the memory of things]. In subsequent ages the sages substituted for these written characters and bonds. By means of these [the doings of] all the officers could be regulated, and the affairs of all the people accurately examined.

CONTRADICTORY ACCOUNTS OF PREHISTORIC TIMES.

Although the appendix to the *I-king* is not so ancient as the text of the classic itself, and cannot, from internal evidence, even be ascribed to Confucius, still its author must have been a first-class disciple of Confucius. This appendix is a masterpiece of style and as such highly valued among the literati of China. Its contents, however, are more philosophical than historical, showing the Confucian construction of history. To Yuo and Shun many inventions

are ascribed which in other accounts are put to the credit of other persons. The fact is, that scarcely any two ancient Chinese traditional records agree one with the other. Ancient Taoist writings are full of traditional matters. A very curious account of prehistoric times is found in the 18th book of the Mountain and Sea Classic (山海經.) Other statements are found in the works of the philosophers Lih, Chuang, Lāi, Wei Nan, etc. It would be waste of time to enter into an examination of their differences, as we have not yet even a clue to these ancient mythological names.

Almost all traditions relating to Chinese prehistoric times are collected in the work called 路史, in 16 vols. More fantastic, and different in other respects, is the 神仙通鑑 in 22 vols., with many illustrations. More generally known among men of letters are the statements in modern compilations of Chinese History called 綱鑑. A well-known compendium of this kind is the *Tung chow kang kien t'sinen pien* (WYLIE, p. 21 : see VON FRIES, *Geschichte Chinas*). From the latter work I extract a few items bearing on our subject :—

Tien Hwang named the Ten Stems and Twelve Branches.

Ti Hwang, who defined Sun, Moon and the Stars as the three lights (三辰), distinguished day and night and determined a month as thirty days.

Yen Hwang founded cities.

Under Yu Chao the former peace between men and animals ceased. Men killed them, drank their blood and ate their hair. The animals then used their natural weapons against men.

Sui Yen taught how to produce and use fire. He knotted cords to remember things, established markets and commercial exchange.

Fuh Hi taught fishing with nets, the domestication of the six kinds of animals (horse, cattle, sheep, chicken, dog, pig) and their use as food. He received the book of the Loh river on the back of a dragon (or horse), from which originated the

eight Trigrams. The art of writing was invented by his minister Ts'ang Hieh.

His sister Nü Kwa invented the Pan-pipe. Shang ordained matrimony, and presents to be sent to the girl by her lover as the definite form of engagement.

Shen Nung taught agriculture. He made implements of wood, distinguished the five sorts of grain, taught other industries, examined medicinal plants and taught their use.

Hwang Ti introduced the cycle of sixty days, investigated the five elements, the twelve tones of music, the stars and planets. He had an officer to superintend pottery, and another to look after the production of wooden utensils. Two of his ministers made boats of trees which they hollowed out, fixing masts in them. He distinguished the five colours, he received the plan (arithmetical figures) from the Ho (Yellow river). He took the Great Bear (constellation) as his model and made chariots, he sacrificed to God (上帝) and to the spirits, and taught the people to do so. He melted gold (perhaps metal in general) and used it as a precious article. He built an Imperial palace, wrote a treatise on the medical art, and laid down the theory of the pulse. His wife Si Ling (西陵) cultivated the silkworm, and taught how to make clothes from silk. He introduced the agrarian system of the *tsing* (井) and other divisions of the country derived therefrom.

Yao ordered an intercalary month every third year, determined the five punishments (branding, cutting of the nose, of the feet, castration, and death), and chose a successor, passing over his own unqualified son.

Shun organized the administration of government and made the low lands habitable by regulating the water-courses.

Yü, the Great, held the first assembly of feudal princes (諸侯) and made his son his successor, though against his own wish.

Thus hereditary succession commenced in China, which was never afterwards interrupted, except by rebellion and with much bloodshed, about fifty times in 4,000 years, including all the partial successes which lasted only for a few years.

Here we find attributed to Hwang Ti or the Yellow Emperor almost all the most important inventions of Chinese prehistoric times. The principal features of the gradual advancement of Chinese civilization, however, remain the same in the different accounts, and may be taken as representing historical facts. The most striking fact to our readers will be the perfect agreement of these Chinese statements of their earliest civilisation with our deduction of Chinese prehistoric civilisation from the Elementary Characters. This is an incontrovertible evidence of the general correctness of both of them.

CIVILIZATION IN ANCIENT CHINA ACCORDING TO THE TRIBUTE OF Yŭ.

(See *LEGGE* III, A, pp. 92 ff.).

First province* *K'ue*, the present Shansi and parts of Chihli (but the provinces cannot be determined exactly, Chinese commentators disagree among themselves considerably):—Wild people of the island brought dresses of skins.

Second province, *Yen*, South-Western Shantung and a small portion of Chihli:—Varnish, silk, baskets filled with woven ornamental fabrics.

Third province, *T'ing*, North Shantung:—Salt, fine grass-cloth, various products of the sea, silk, hemp, lead, pine trees, strange stones, wild silk.

*The term "provinces" is rather misleading; "circuit" would be better.

Fourth province, *Sa*, one department of Shantung, parts of Kiang-su and Ngan-luei, North of the Yangtze :—Earth of five different colours, variegated feathers of pheasants, solitary dryandra (*tung*), floating sounding stones, oyster pearls, fish in baskets, deep azure silks, and other silken fabrics, chequered and pure white.

Fifth province, *Yang*, sea-coast, South from the Yangtze :—Metal of three kinds (gold, silver, copper), *gao* and limestones, bamboo, small and large, ivory, hides, feathers, hair, and timber, garments of grass, woven ornamented silks, oranges and pineapples.

Sixth province, *King*, Central Hu-kwang :—Feathers, hair, ivory, hides, three kinds of metal, the *chun* tree, wood for bows (*kan*), cedars, cypresses, grindstones, whetstones, arrow-head stones, cinnabar, two kinds of bamboo, *T* tree, a kind of rush, deep azure and purple silken fabrics, strings of pearls, great tortoise.

Seventh province, *Yu*, Honan and a small portion of Hupeh :—Varnish, hemp, fine and coarse hempen cloth, fine silken fabrics, fine floss silk, stones for polishing, sounding stones.

Eighth province, *Liang*, Sze-chuan and part of Kan-su :—Musical gem stones, iron, silver, steel, stones for arrow-heads, sounding stones, skins of bears, great bears, foxes, and jackals, articles woven with their hair.

Ninth province, *Yang*, Shensi, Kan-su and portions of Sze-chuan :—*Ken* and *lin* gem-stones, *lung-kan* precious stones, hair-cloth and skins.

This so-called Tribute of Yi shows such an advanced state of civilization that, on this account, we find it impossible to allow it to pass as a description of the period 2200 B.C. It may be correct for the time at the beginning of the Chow dynasty, a thousand years later, but certainly not earlier. In addition to the articles already mentioned as belonging to

the prehistoric or earliest period of Chinese civilisation, which we have followed from its beginning to the days of Yao and Shun, the immediate predecessors of Yü the Great, and to Yü himself, we find here mentioned:—skins of two kinds of bears, of foxes and jackals, and articles woven with their hair; varnish from two provinces, Shantung and Honan, fine grass-cloth, garments of grass, wild silk, hemp, fine and coarse hempen cloth; pine trees, cedars, cypresses, *tung* tree, *U* tree, four kinds of bamboo, rush. Arrows were made in primitive times of wood or of bamboo, but here we find mentioned arrow-head stones from Hu-kuang and Szechuan, besides a large number of other stones. Metal [gold] had been mentioned only for its value in exchange, but here we find metals of three kinds [gold, silver and copper] from the sea-coast province, south of the Yangtze, and from Hu-kuang, while special names are given to lead from Shantung, and to iron, silver and steel from Sze-chuan. Various productions of the sea are also mentioned, but only from Shantung.

Of colours five belonging to the mineral class are mentioned, of dyes, deep azure [indigo?] and purple. The manufacture of silk seems to have centred in Shantung; Hu-kuang, Honan and the islands of Chekiang participating.

During the Chow dynasty the laws and government of the feudal states became developed, ceremonies were multiplied and literature flourished, but the general features of civilisation remained almost the same as the Tribute of Yü describes them, even to the end of that dynasty—225 B.C. Those who wish to go more into details in regard to the period just mentioned may read with advantage the admirable essay, by EDOUARD BIOT, "Researches into the Manners of the Ancient Chinese, according to the *She-king*," published in LÉGUE'S *Chinese Classics*, IV. A, pp. 142 ff.

THE NINE CIRCUITS ACCORDING TO THE CHOW LI.

The term "circuit" is used here instead of the common translation of 洲 by "province." China had no provinces, in the modern sense, in those early days. The term "circuit" is chosen with reference to the tours of inspection made by some of the ancient rulers of China.

Chinese critics do not regard the *Chow Li* as a genuine work of the Chow dynasty, but as a production of the Early Han period. The famous Sung scholars Cheng and Chu already noticed the discrepancies between the *Chow Li* and Mencius. [See *Canton Miscellany*, 1831, p. 13.] The views of the best authorities of modern times may be seen in the Imperial Catalogue of the K'ien Lung period, the 欽定四庫全書總目, 120 vols.

The *Chow Li*, Book xxxiii, which treats of the duties of the Surveyor-General, 職方氏, as a department of the Summer-officers, contains a description of the "Nine Circuits" similar to that in the Tribute of Yü.

First circuit, *Yang*, [identical with Yü's fifth]. Its source of wealth [利, Biot translates "merchandise"] is gold, tin and bamboo arrows [according to commentaries, two kinds of bamboo.—Biot.] Inhabitants, five males to two females. Birds and animals are reared, and rice is grown.

Second circuit, *K'ing*, [Yü's sixth]. Its resources are cinnabar, silver, ivory, hides. Population, one male to two females. Birds and animals are reared, and rice is grown.

Third circuit, *Yu*, [Yü's seventh]. Its resources are bamboo-timber, varnish, silk, hemp. Population, two males to three females. The six kinds of domesticated animals are reared, and the five kinds of grain are cultivated.

Fourth circuit, *Tsing*, [Yü's third and the fourth, *Sa*, united with it]. Its resources, rushes [matting grass?] and fish. Population, two males [two probably for three] to two females. Fowls and dogs are reared, and rice and wheat are grown.

Fifth circuit, *Yen*, [Yü's second]. Its resources, rushes and fish. Population, two males to three females. Six kinds of animals are reared, and four kinds of grain are grown.

Sixth circuit, *Yang*, [Yü's ninth, and the eighth, *Liang*, united with it]. Its resources, jade and stones. Population, three males to two females. Cattle and horses are reared. Shu and tsieh millet grown.

Seventh circuit, *Yea*, [portion of Yü's first]. Its resources, fish and salt. Population, one male to three females. Four kinds of animals are reared, and three kinds of grain are grown.

Eighth circuit, *K'e*, [Yü's first]. Its resources, pines and cypresses. Population, five males to three females. Cattle and goats [sheep?] are reared, and two kinds of millet are grown.

Ninth circuit, *Ping*, [portion of Yü's first]. Its resources, cloth and silken fabrics. Population, two males to three females. Five kinds of animals are reared, and five kinds of grain are grown.

That silk should be mentioned as a principal article of value in the most northern province is very strange. Native produce is out of the question there, and trade in this article could not have amounted to much with the barbarian inhabitants of Mongolia. The order of the circuits is also unintelligible. Why is *Yang* the first? Then the jump from Kan-suh [vi] to the Gulf of Pechili [vii] and back again to Shensi [viii]. The account in the Tribute of Yü is superior in every respect. The status of civilisation which it represents is certainly higher than what the *Chow Li* exhibits. To maintain that

the tribute of Yü is a record written about 2,000 years before the *Chou Li* appears to me simply impossible. The few changes in the circuits can be easily understood. The division, for example, of Yü's first, or northern, province into three—*Yen*, *K'e* and *Ping*—as described in the *Chou Li*, is ascribed to the Emperor Shun, [see LEGGE, III n, 32]. Why the four western provinces or circuits were united into two, and when, remains to be explained. It is to be noted—and we call special attention to it—that neither iron, steel nor lead, is mentioned in the record of the *Chou Li*, though all three figure in the "Tribute of Yü" as revenue from several provinces. Thus we declare without hesitation the record in the *Chou Li* to be an earlier document than the present text of the Tribute of Yü. Further, the modern text of the Tribute of Yü must have been unknown to the compiler of the *Chou Li* and *vice versa*. We are justified, by a comparison of both works, to draw the conclusion that they are independent enlargements of a common ancient tradition, consisting almost exclusively of geographical names and statistical notes. But, as the settlement of this question is of little consequence to the subject before us, I leave it for future treatment.

There are only four other complete tables of the productions of China, in detail for each province, as far as I have been able to find out. The next in order of time belongs to the T'ang dynasty, probably of the 8th century A.D. The absurdity of a gap of almost 3,000 years, between the table in the so-called Tribute of Yu and this, needs no further remark. About 1,000 years is all we can allow. Then we find a table from the Sung dynasty, about the 11th century. Another is from the Ming dynasty, 15th century, and the last is given in the 大清一統志, the statistical account of China under the Manchu rulers, published in 1744. A résumé of the latter can be seen in *La Chine Moderne*, by

M. G. PAUTHIER. An intelligent comparison of these different lists would furnish us with a history of both the natural and the industrial productions of China during at least 2,000 years. Another list brought up to date would increase the interest and value of such a comparison.

A LIST OF NINETY-ONE SO-CALLED ANCIENT WORKS
WHICH ARE REJECTED BY CHINESE SCHOLARS
AS NOT AUTHENTIC.

This list is taken from a work in one vol., **古今偽書考**, by Yao Shao-yuen (姚首源), of the K'ang Hi period. His views are largely supported by quotations from other scholars. Many more works could be added by going through the 120 volumes of the Imperial Catalogue (K'ien Lung) **欽定四庫全書總目**. There is as much forgery of ancient books going on in China as of coins, bronze, porcelain, etc. The Imperial Catalogue, however, shows that Chinese scholars of some eminence are not so credulous as a few foreign Chinese students appear to be. The Roman numbers refer to the Imperial Catalogue, as far as I succeeded in finding these works mentioned therein. The Arabic numbers follow Yao's book.

A.—*Classical Works*, **經類**.

(1).—**易傳**, the ten appendices to the *Yi-king*, are essays, not by Confucius, but handed down and altered through generations.

(2).—**子夏易傳**, not mentioned in the Han Catalogue ;—made its first appearance in the Sui Catalogue. [i, 3.]

(3).—**關朗易傳**. Mentioned neither in the Sui nor in the Tang Catalogue;—fabricated during the Tang dynasty.

(4).—**麻衣正易必法**. A production of the Sung dynasty.

(5).—**焦氏易林**. After the Eastern (Later) Han. (From A.D. 25–200). [cix, 13.]

(6).—**易乾鑿度**. A compilation of the Sung dynasty. [vi, 53.]

(7).—**古文尚書**. 25 chapters, included in the sacred text of the *Shu King*, manufactured during the time of the Eastern Tsin, (A.D. 317–419). [s. xii, 25 ff.]

(8).—**尚書漢孔氏傳**. The same as No. 7.

(9).—**古三墳書**. A production of the Sung period. [x, 42.]

(10).—**詩序**. Not mentioned in the Han Catalogue;—came to light during the Later Han period from the school of **馬毛**. [xv, 2.]

(11).—**子貢詩傳**. [xvii, 11.] and

(12).—**申培詩說**. Produced by an author of the Ming dynasty (A.D. 1368–1643).

(13).—**周禮**. Appeared at the end of the Western Han (B.C. 206–A.D. 24). [s. xix, 2 ff.]

(14).—**大戴禮**. The present work is not *Tai's* but a later compilation. [xxi, 30.]

(15).—**孝經**. Not taught by Confucius, and its teaching differs from that of Mencius. [xxxii, 23.]

(16).—**忠經**. Doubtless not written by Ma Yung, as asserted. [xcv, 4.]

(17).—**孔子家語**. The present work is not the original, but a compilation by its commentator of the Tang dynasty. [xci, 3.]

(18).—**小爾雅**. The present work is not what is mentioned in the Han Catalogue, but a modern compilation. [xliii, 1.]

(19).—**家禮儀節**. A production of recent times. [xxv, 30.]

B.—*Historical Works*, 史類.

(20).—竹書紀年. [xlvi. 1.]

(21).—汲冢周書. and

(22).—穆天子傳. These three works, and some others, are said to have been found in a grave in A.D. 281, where they had been deposited for 595 years. Their contents, however, show that they were written *after* the Han dynasty, probably not long before their discovery. [exlii. 3.]

(23).—晉史乘 [lxvi. 33.] and

(24).—楚檮杌 are compilations by a scholar of the Yuen dynasty (A.D. 1206–1367).

(25).—漢武故事. Ascribed to Pan Ku, with whose writings the contents do not agree. It was made by a Tang scholar. [exlii. 7.]

(26).—飛燕外傳. Ascribed to a Han scholar, but it is the compilation of one of the Ming period. [exliii. 2.]

(27).—西京雜記. Mentioned in the Sui Catalogue, without the name of the author. It is a doubtful work.

(28).—天祿閣外史. Ascribed to a Han scholar, but written by one of the Ming period. [exxiv. 2.]

(29).—元經. Said to be written by a Sui scholar, but referred to one of the Sung dynasty. [xlvi. 9.]

(30).—十六國春秋. The old work is long lost, and the modern is a compilation by two Ming scholars. [lxvi. 9.]

(31).—隆平集 is not by the Sung author to whom it is ascribed.

(32).—我身錄. A doubtful Taoist production of the Ming period.

C.—*Philosophical Works*, 子類.

(33).—鬻子. Mentioned in the Han Catalogue. The modern work, however, does not agree with the two works described there. The contents show that it is not earlier, and it is probably later, than the Han period. [cxvii. 1.]

(34).—**關尹子**. Though mentioned in the Han Catalogue, it is not in the Sui, Tang, etc., Catalogues; thus lost long ago. The present work savours of Buddhism. [cxvi, 16.]

(35).—**子華子**. This is probably a Sung falsification, feeble and mean. [cxvii, 5.]

(36).—**亢倉子**, not mentioned by the famous Han scholars, contains extracts from a number of Han publications, but nothing original. [cxix, 46.]

(37).—**晏子春秋**. The number of parts does not agree with the work mentioned in the Han Catalogue. It is probably a biography compiled by later writers. [lvii, 8.]

(38).—**鬼谷子**. First mentioned in the Sui Catalogue. It contains dangerous doctrines, ruinous to Family and State. [cxvii, 12.]

(39).—**尹文子**. A few historical allusions show that it is false, and a later fabrication. The work mentioned in the Han Catalogue cannot be the same. [cxvii, 6.]

(40).—**公孫龍子**. Mentioned in the Han, but not in the Sui Catalogue. The modern edition is a later production. [cxvii, 10.]

(41).—**商子**. Mentioned in the Han Catalogue, but the modern edition is by later hands. [ci, 6.]

(42).—**鶡冠子**. Mentioned as a Taoist work in the Han Catalogue, but the modern edition is shallow and commonplace. [cxvii, 9.]

(43).—**慎子** is described as being of different sizes in the various catalogues, and the present editions differ from them all. [cxvii, 7.]

(44).—**於陵子**. Produced by a Ming scholar. [cxxxiv, 1.]

(45).—**孔叢子**. Mentioned neither in the Han, Sui nor Tang Catalogue, but first in the Sung. The work contains historical statements which are wrong. It is probably a compilation by its Sung publisher. [xci, 7.]

(46).—**文中子**. It is doubtful whether such a person ever lived. The work is probably a production of its Sung publisher.

(47).—**六韜**. First mentioned in the Sui Catalogue. The work shows a misunderstanding of the meaning of 陰符, which is ridiculous. [xcix, 3.]

(48).—**司馬法**. According to the Han Catalogue, it consists of 155 parts, in the Sui Catalogue only three are mentioned, and the modern edition has scarcely five, which proves that the original was lost long ago, and the present is a later compilation. [xcix, 6.]

(49).—**吳子**. The Han Catalogue mentions 48 parts. The modern work in six parts is an imposture. [xcix, 5.]

(50).—**黃石公三略**. First mentioned in the Sui Catalogue, without name of author, except that it was written by a half-god, which is ridiculous. [xcix, 8.]

(51).—**尉繚子**. Two works are mentioned in the Han Catalogue, with which the modern edition does not agree. The contents prove it to be an imposture. It should be destroyed. [xcix, 7.]

(52).—**李衛公問對**. On military art. There was no complete work in existence, but only an outline in the 通典, from which a Sung author concocted this edition. [xcix, 12.]

(53).—**素書**. Falsely attributed to Hwang Shih-kung (s. 50), but really the work of its publisher and commentator, Sung dynasty. [xcix, 10.]

(54).—**心書**. Falsely ascribed to Koh Liang. [c, 5.]

(55).—**風后握奇經**. A work of modern times.

(56).—**周髀算經**. First mentioned in the Sui Catalogue. The first two characters of its title are not intelligible. It is folly to refer it to Chow Kung. [cvi, 2.]

(57).—**石申星經**. The modern edition is an imposture. [cvi, 34.]

(58).—**積善書**. Ascribed to Kwoh Poh. It is a vulgar forgery. [*s. cix, 1.*]

(59).—**撥沙經**. A forgery, though said to be a work from the Tang dynasty.

(60).—**黃帝素問**. First mentioned in the Sui Catalogue. It is a product from the time after the Han. [*ciii, 1.*]

(61).—**靈樞經**. Belongs to the same period as No. 60. [*ciii, 3.*]

(62).—**神農本草**. Not mentioned in the Han Catalogue. The name **本草** first occurs in the history of Ping-ti of the Han. The work is a production of the Eastern Han; later generations added to it. [*civ, 36.*]

(63).—**秦越人難經**. First mentioned in the Sui Catalogue, and afterwards in the Tang Catalogue. Nothing more can be found out. [*ciii, 4.*]

(64).—**脈訣**. Ascribed to a writer of the Tsin, but it is a later imposture, probably from the five dynasties. [*civ, 18.*]

(65).—**神異經** [*cxlii, 4.*] and

(66).—**十洲記**. Both works, ascribed to a Han scholar, are forgeries. [*cxlii, 6.*]

(67).—**列仙傳**. Ascribed to Liu Hsiang, but not mentioned in the Han Catalogue, where the works of this author are enumerated; the style also differs. [*cxli, 32.*]

(68).—**洞冥記** is an imposture from the time of the six dynasties. [*cxlii, 10.*]

(69).—**博物志**. Ascribed to a scholar belonging to the Wei and Tsin dynasties, who is said to have read 30 cart-loads of books, and produced a work in 400 books, which he afterwards reduced to 10. This is incredible. The work is a forgery by the commentator, who lived during the Tang dynasty. [*cxlii, 39.*]

(70).—**杜律虞註**. This is also falsely ascribed to another author.

D.—*Authentic Works wherewith False Portions
are intermingled.**

(71).—**三禮考註**. Contains many later additions. [By 吳澄 of the Yuen dynasty.] [xxv, 1.]

(72).—**文子**. A pupil of Lao Tsz, contemporary of Confucius, may be doubted. The book is in the style of Lao Tsz, but contains also much taken from Mencius and other sources. It has, however, a genuine kernel in it. [cxlvi, 28.]

(73).—**莊子**, especially four chapters, are found objectionable. [cxlvi, 21 ff. and cxlvii, 7 ff.]

(74).—**列子**. Said to be forged out of Chuang Tsz with later additions. [cxlvi, 18 ff. and cxlvii, 6 ff.]

(75).—**管子**. It is not the work of one man's pen.

[ci, 1 and 13 ff.]

(76).—**賈誼新書**. The author's name is famous among the Han scholars. The name of this book appears first in the Sui Catalogue. The [present] work is certainly not the original work of Yi. [xci, 11.]

(77).—**傷寒論**. A medical work by a Han scholar, but so confused that it is difficult to get a clear idea out of it.

(78).—**金匱玉函經**. Ascribed to the author of No. 77, but it is an imposture by a later person.

(79).—**爾雅**. Neither the Han nor the Sui Catalogue mentions its author. In the Tang dynasty it is first ascribed to Chow Kung, which is wrong. The book was composed after *Li Sou* (離騷), to which elegy it alludes. It may belong to the Han time. It serves to explain the Classics, but cannot be classed among their number. [xi, 3.]

(80).—**韻書**. The older work is lost, and this is by a Sung scholar.

(81).—**山海經**. The Han Catalogue does not mention the author. The idea that it is the work of Emperor Yü is

* The *Li-ki* and *Yi Li*, of the Classics, belong to this class.

ridiculous. It was written by somebody between the Ts'in and Han dynasties, *i.e.*, about B.C. 250-200. [exlii, 1 ff.]

(82).—**水經**. The Sui Catalogue mentions two different works without their authors' names, which cannot be determined now. [exix, 1 ff.]

(83).—**陰符經**. Published by a Tang author. To ascribe it to Hwang-ti, etc., is not worth refutation. [exvi, 2 ff. and exlvii, 1 ff.]

(84).—**越絕書**. It first occurs in the Sui Catalogue. To ascribe it to 子貢 or to 子胥 is wrong. It is from a person of the Eastern Han. [lxvi, 3.]

(85).—**吳越春秋**. It is ascribed to two different authors, and it is impossible now to decide the question. [lxvi, 1.]

E.—*Authentic Works with False Titles.*

(86).—**春秋繁露**. The Han Catalogue contains two works by the author Tung Chung-shü, one on the Spring-Autumn, the other doctrinal. 儒家. Of these, some parts were lost, and the remaining portions were collated into one work, of which several chapters, out of the 82, have nothing to do with the Spring-Autumn.

(87).—**東坡志林**. A ridiculous confusion between two different works. [cxx, 21.]

F.—*Works by Unknown Authors.*

(88).—**國語**. The Han Catalogue mentions no author. The *Sz Ki* gives 左丘明, but this is doubtful. [ii, 1.]

(89).—**孫子**. The *Sz Ki* mentions this author and his work, but Tso Chuen is silent. Then there is a difference between the *Sz Ki* and the Han Catalogue. [xcix, 4.]

(90).—**劉子新論**. There is a choice between four Lius.

(91).—**化書**. A Taoist work. [cxvii, 26.]

The Chinese volume from which this list is taken bears no date, but it cannot be less than 200 years old. Since that time antiquarian research has been going on among the Chinese with much ardour. But the results of their critical labours have not yet been collected into one work like Yao's. The Imperial Catalogue, mentioned already, was completed in the year 1782, more than 100 years ago. As it exhibits very fair judgment, we regret that it is not brought up to date. The large collection of works on the Classics, called 皇清經解, in 360 volumes, and a supplement to it of about the same size, embody much of the latest researches on the 13 classical books, including the different readings of the text. Of other ancient works only such are taken into consideration as have a direct bearing on the Classics. A great deal of valuable criticism is still scattered through writings published privately, or in collections of miscellaneous writings, which are commonly expensive and sometimes difficult to obtain. I feel sure that the critical tendency among many highly accomplished native scholars is due to Western influence on the Chinese mind. On the other hand, an unscholarly dependence on the writings of the earlier Jesuits, with a corresponding neglect of recent publications, as also absence of independent research into the modern literature of China, betray an antiquated state of sinology under which only the conservative views of Chinese authors, mostly of ancient times, are brought forward as the Chinese opinion of the question.

APPENDIX (A).

[Quotations from T. WATTERS' *Essays*.]

A few weeks after the manuscript of my paper on "Prehistoric China" had been in the hands of the Council of the C.B.R.A.S. the new work, *Essays on the Chinese Language*, by T. WATTERS, Shanghai, Presbyterian Mission Press, 1889, appeared. This is a most valuable contribution to Chinese Philology. Its masterly treatment of the subject, the richness of information it gives from original sources, and the rays of light it throws on many difficult questions, will repay a careful study of its contents. Though the scope of the work differs from what is aimed at in "Prehistoric China," though our methods vary and our results may appear as not of the same nature, or as belonging to different departments, still there are many points where we touch one another. The student will, therefore, probably welcome a few extracts.

(p. 21) "But it is to be noted that the passages in the 'Shu-ching' just referred to" [on the character for writing, 書] "have been condemned as spurious by some critics, and there is some doubt as to their genuineness. (p. 22) Among the official class, writing seems to have been in common use under the early rulers of the Chou dynasty. (p. 23) In this period colleges existed at all official centres, and schools of various kinds were to be found generally throughout the country. Books were written and libraries formed, though, it must be presumed, only on a small scale. *The written characters were few and insufficient*, much time was wasted in the process of writing, and the materials used were rude and clumsy." [Comp. p. 155 of this essay.]

(p. 25, Note). "Chu Fu-tzu writes to a friend that the 'Ur-h-ya' was a compilation of the explanations and definitions given by the scholars of former and contemporary times made into a book, but that it has inaccuracies and *cannot be regarded as old*." [See Works rejected No. 79, p. 211.]

(p. 25) "But Chow's invention had the effect of producing a considerable number of new characters, and of restricting to a small extent the applications of those already existing." [Comp. pp. 155 & 149.]

(p. 27) "It is from this period of Ch'in Shi Huang Ti that the use of the term *tsu* (字) or 'character' dates, and the change in name

from *wén* (文) or *shu* (書) is said to have been brought about by the modes of writing invented by Li Ssü and Ch'êng Mao. Hitherto, all inscriptions and engravings had been mainly pictorial or symbolic, expressing, as their chief office, only objects or ideas, but now sounds also began to receive attention." This puts the beginning of phonetic writing about 600 years later than my estimate of the period of "Chow's invention." I consider the classical period 600-250 B.C. as inconceivable without phonetic writing. [Comp. p. 153.]

(p. 31) "But the book which has given Yang Hsiung [B.C. 52-A.D. 18] his chief fame in later times is the 'Fang-yen.' [See p. 184 of this.] Native scholars have tried in vain to find out how and why the authorship of this treatise came to be ascribed to him. It is not mentioned in the list of books in the 'Han-shu' nor in the life of Yang Hsiung in that work, nor, so far as is known, does Hsü Shên or any other of Yang's contemporaries refer to the book by name." This should be added to the list of rejected works, under E. p. 212.

(p. 33) "For the making of his 'Shuo-wên' Hsü Shên studied, with the help of Chia K'uei, one of the greatest of the Han scholars, all the accessible literature in the old characters and in those invented in later times. He compared the texts of the recovered tablets, collected inscriptions on ancient vases, and examined the writings of his predecessors, such as Shi Chow, Li Ssü, and Yang Hsiung." [Comp. pp. 130, 151 of this.]

(p. 37) "The Buddhist missionaries had come from India and settled down in China . . . They tried to introduce their own alphabet and have it brought into use in China, but in this they completely failed. They succeeded, however, in teaching the Chinese, or at least in giving popularity among them, to an art of spelling, which, though rude and inaccurate, is better than none. This is the procedure known as *Fan-ch'ie* (反切)." [Comp. pp. 156 ff. & 160]

(p. 54) "In the year 744 an Imperial order was given to have the 'Shu-ching' transcribed in the characters in common use at the time. The Emperor, Ming Huang, disliked the *li* characters in which the 'Shu' and other classics continued to be written. Moreover, these characters had become obsolete, hard to learn, and liable to confusion, and only professional scholars could read the canonical books . . . The editions of the classics in the vulgar writing soon superseded the others." [Comp. the final sentence of Appendix B. p. 218.]

(p. 57) "Neither of these two brothers [Hsü, who re-edited the Shwuh-wên in the Sung period to form the basis of the modern editions] gave much study to the phonetics of the language, and later scholars object to them that they overlooked the changes which had passed over the sounds of characters between the Han and T'ang dynasties." [Comp. p. 151.]

(p. 66) "Chêng Ch'iao, 1104-1162, [see p. 158 of this] one of the most erudite and renowned men of letters of the Sung dynasty, distinguished by almost universal knowledge . . . He produced also a book in three *chuan* 'Shi-ku-wên' (石鼓文) in which he argued against the supreme antiquity of the 'Stone Drums.' From the resemblance of the characters on these to characters found on objects of the Ch'in dynasty (B.C. 255 to 206) he concluded that the Drums also belong to that period." [Journal N.C.B.R.A.S. Vol. viii, p. 134.] [Comp. Appendix B.]

(p. 69) "Wu" [吳棫, 12th century] "argued that the political ballads and other poems of early times were at first sung, or chanted, or recited, and that they were not committed to writing but preserved in memory. He held that the minstrels and poets used the sounds current in their several districts at the time, and that words of different tones in the 'Shi' were interchanged and rhymed together." [Comp. p. 184.]

(p. 100) "It must be admitted that the investigation of the language is seldom pursued by native scholars as an independent study. It is always an 'inferior science,' and gains importance only as a help to the understanding of the orthodox canonical literature. From the 'Shuo-wên' down to the latest dictionary, all etymological treatises have been composed with the express design of aiding in the settling of texts, clearing up the meaning, or ascertaining the sounds of characters in the old Confucian writings or in the works composed to teach, illustrate or continue those writings." [Comp. pp. 182-187.]

(p. 120) "Carving in wood seems to have been practised in China from a remote period, and to have been employed for various purposes. In the seventh century B.C. the projecting beams of the roofs of temples and palaces were sometimes elaborately carved and colored. . . . But such rude appliances as knotted cords and carved sticks could not long suffice to meet the requirements of a growing society. The Chinese, accordingly, represent themselves as having at an early period of their history learned to cut, and afterwards paint, in wood

and stone and metal, figures or outlines of objects. These were practically the first beginning of writing for them. All the earliest characters seem to have been either pictorial representations or rough symbols of natural objects and phenomena. That is, they were either drawings which presented an outline of an object, or drawings which by their composition pointed to the meaning intended." [Comp. pp. 192-193.]

(p. 123) "At first only material objects and their relations, dealings of business, and affairs of government, were depicted in outline or symbol. The chief aim which the inventors and first improvers of the graphic art had in view was to make a record which could be appealed to as evidence. It was in matters of government, according to some native writers, that the use of writing began, the design of the inventors being to facilitate intercourse between the ruler and his servants, and between these and the people, and to register transactions of importance. Thus, when in old times the prince of one state invaded the territory of another, slew the inhabitants, and carried off the booty, he caused the event to be recorded. It was written on bamboo or silk, and engraved in metal and stone to be inscribed on sacrificial vessels for the information of posterity. . . . 'Tadpoles' became the name of a certain whimsical style of written characters." [Comp. p. 162.]

(p. 124) "Dr. EDKINS also has stated that 'the phonetic characters appear to belong to the same era as those that are hieroglyphic. They are found together among the earliest remains of Chinese literature. According to the uniform national tradition, they must, therefore, be dated about B.C. 2700.' But this can scarcely be set down as the prevailing opinion among native students of the language. It may be true, however, of written characters, strictly so-called. The earlier transcript of language, which was called *we* (文), is defined as the visible representation of objects arranged according to categories (or classes). It is also stated that *we* is the source of object-picturing or delineation."

(p. 126) "One of the marks whereby a barbarian is known is, that he writes from left to right, another being, that he takes his food without using chop-sticks . . . The Buddhist scholars, whether native or foreign, taught moderation and even modesty in the comparison between Chinese and Sanskrit."

APPENDIX (B).

[THE STONE DRUMS.]

"On the Stone Drums of the Chou Dynasty," an able paper by S. W. BUSHELL, R.Sc., M.D., was read before the Society on November 18th, 1873, and is printed in Vol. VIII. of the Journal. I can here give only a short extract and refer the reader to the article itself.

"The Stone Drums were discovered in the province of Shensi, lying half-buried in the ground. The earliest accounts of them were written during A.D. 627-649. From intrinsic evidence the inscriptions have been referred by the large majority of authorities to the period of Hsuan Wang (B.C. 827-782). They record a hunting expedition in the writing invented by Chou-shih (Ta-ch'uan). There is, however, no mention of the fact in the historical records of this reign.

"Under the Sung, the celebrated writer Ou-yang Hsiu was the first to question their authenticity. He says: '*In my collection of ancient inscriptions, there is not one so old as these.*' Yet there are three doubtful points which suggest themselves to me. First, their good preservation compared with other inscriptions less old. Second, that they are the only remains of that period beside the Shih and Shu. Third, that no mention is made of them in any early record."

The answers by Chinese authors are not satisfactory, nor is Dr. BUSHELL's summing up: "If we accept the train of reasoning of Ou-yang we must reject all the sculptured monuments of Egypt, Assyria and Persia which have been brought to light in such profusion of late years." As neither the material used in China is the same, nor the climate in the countries referred to, we cannot compare the durability of the monuments here and there. To me the most suspicious feature appears to be that characters of the ancient style should have been so easily decipherable as is the case with all the characters on the Stone Drums.

APPENDIX (C).

[CHINESE ASTRONOMY.]

Dr. LEGGE's view in the *Sacred Books of the East*, Vol. III, Oxford, 1879, differs from the opinion he expressed in the *Chinese Classics*, Vol. III, Hongkong, 1865. The only new argument brought forward is a chart, by Professor C. PRITCHARD, of the stars as they were visible in China in B.C. 2300. In a pamphlet—*Die Schu-King-Finsterniss*, von Dr. G. SCHLEGEL und Dr. FRANZ KUHNERT, Observator der K. K. Gradmessung in Wien,—which was published at Amsterdam in 1889, a new attempt is made to calculate the date of the Eclipse of the Sun mentioned by LEGGE (*Shoo King*, I, 167). It will be interesting to take a glance at the history of this astro-sinological experiment.

The Jesuit GAUBIL fixed the date at October 11th, 2154 B.C., in accordance with the Chinese T'ang astronomers and the accepted chronology of the Chinese.

According to the Chinese Bamboo-books (see LEGGE's *Chinese Classics*, Vol. III), it would be the 28th of October 1948 B.C.

LARGETEAU found, in the year 1840, that this eclipse occurred during the night, before sunrise, at *Ngan-yih* (安邑), and was, therefore, not visible. Dr. CHALMERS came independently to the same conclusion and adopted the date October 12th, 2127, "without fear of its being hereafter proved invisible." But 15 years later, von OPPOLZER proved that this eclipse was not visible at that place in China. The same fate happened to FRÉRET and CASSINI's 24th October 2009, and JOH. V. GUMPACH's 22nd October 2155. THEODOR VON OPPOLZER found that of 34 ecliptic conjunctions of sun and moon between 2200 and 1900 B.C., which had occurred in the month of October, only two were visible at that locality in China—those of the 21st October 2136, and 10th October 2135. He decided for the 21st October 2136, provided that the passage in the *Shu King* could be translated in a different way.

SCHLEGEL and KUHNERT, May 1889, leave the choice between 12th May 1904 B.C. and 7th May 2165. but decide "with great probability" for the latter date.

SCHLEGEL takes the passage in *Tso-chuen*, Duke Ch'ao, xvii year (LEGGE, Vol. v, p. 667) as his basis. This passage is taken as a repetition of the statement in the *Shu* (III, iv, 4), but as the dates do not agree—LEGGE says: "The 4th month of Hea was the 6th of Chow. But the present text of the *Shoo* places the eclipse in the 9th month of the year"—SCHLEGEL declares the date given in the *Shu* as AN ALTERATION OF THE ORIGINAL TEXT by the Han revisers, or even by Confucius himself, to make it conform to the position of the sun in their time. The ancient Chinese observation, however, is *supposed* to have been made at evening in the 2nd month of spring (akronyktischer Aufgang) and in the morning during the 3rd month of spring (kosmischer Untergang), of which no ancient text says a word. Further, I think the limitation of the period to 1900 B.C., according to the Bamboo-books, [Comp. p. 207, Nos. 20-22,] without scientific foundation.

OBITUARY.

EDWARD COLBORNE BABER.

From time to time our Society has to note in the pages of its Journal the loss of one or other of its members. But seldom has it to deplore the disappearance from its roll of so striking an individuality as his, whose death in the wilds of Burmah the newspapers have recently recorded. Had EDWARD COLBORNE BABER been a Frenchman, he would long since have worn a red ribbon, perhaps even a rosette, in his button-hole ; but he belonged to a nation which is slow to distinguish, and he has gone to his grave with no other mark of distinction than that accorded by the *vox populi*, viz., that of being spoken of, far and wide, by his simple surname without any addition at beginning or end, which constitutes in itself no doubtful sign of popularity and fame.

It is just 24 years since BABER joined the British Consular service in China, and the first decade of that period was occupied with the usual duties of a Consular officer in this country. He did not fail, however, to give evidence, on occasions, of that energy and force of character, which have since carried him through many a scene of difficulty and danger. Most of us have heard of his exploit at Nan-chang, when he overawed a dangerous mob, by felling to the ground with a single blow of his fist a ruffian, who thrust an impudent head inside the curtains of his official chair. But BABER'S reputation was in the main built up outside the narrow limits of an ordinary Consular career, and it is as an explorer in the untrodden ways of China that he is best known. To him belongs the credit of being one of the few to succeed in investing a Blue Book with a

real literary charm : witness that account of his travels in South-western China, published, by arrangement with the Foreign Office, as a special supplement to the Annual Report of the Royal Geographical Society some years ago. In those pages, which, though written for "presentation to both Houses of Parliament," form as fascinating a record of travel as any issued by a Murray or a Macmillan, we can see how his spirit beat against the bars, within which he was confined by the etiquette of the unimaginative official style ; and we learn from his own outbursts of regret, how he longed to clothe in a poetical garb worthy of his subject, his descriptions of the glorious mountains of Yünnan. And elsewhere, untrammelled by the requirements of officialism, he was fond of mounting Pegasus and trotting him round for the benefit of his friends. His humorous ballad, "In Yuen-ming-yuen all gaily arrayed," is too well known to be more than referred to.

BABER was attached as interpreter to the Grosvenor Mission, sent into Yünnan in 1876 to investigate the circumstances of the murder of MARGARY, and to see that justice was done on the guilty parties. He was later stationed for some time at Chungking, which was the starting-point for the explorations he made throughout Ssüch'uan and Yünnan. In one of these journeys he had for companion Captain GILL, whose book of travels, *The River of Golden Sand*, is well known. In 1879, BABER was appointed Chinese Secretary at Peking, a sedentary post which scarcely suited his restless energies, and which he retained but for a short time. Still nominally attached to the service in China, he was commissioned as Consul successively at Chefoo, Ichang and Swatow, but took up his appointment at none of these places. After a short incumbency of the Consul Generalship in Corea, he quitted China, as we now know, for ever, his services being lent to the Government of India, in connection with the task of delimiting the frontier between Yünnan and Burmah. Though, in earlier days at least, much addicted to all forms of athletic exercise, he was not constitutionally strong, and had a sovereign contempt for the precautions which the average European thinks it necessary to take against the dangers of an Eastern sun. Till further details are to hand, we can only conjecture what the

causes were which led to his last illness, whether lack of stamina to resist a sudden attack, or unavoidable exposure to the treacherous climate of Upper Burmah. Whatever the cause may have been, we know he has died at his post and in the midst of his duties. In EDWARD COLBORNE BABER our Society has lost one of its most distinguished members; the Government, a zealous and energetic servant; and those who knew him well, a valued friend.

REVIEW.

AN EXPOUNDER OF DARK SAYINGS.

"CHUANG TZŪ, Mystic, Moralist and Social Reformer;" *Translated from the Chinese by Herbert A. Giles, H. B. M.'s Consul at Tamsui.* London: Bernard Quaritch, 1889.

We live in days of which the most striking characteristics are an advance by leaps and bounds in all departments of science, and an iconoclasm of creeds as thoroughgoing, in its way, as Luther's revolt from Popery, and much more widespread. Some there are who would connect the two phenomena in a chain of cause and effect, and not without plausible grounds. However that may be, it is certain that the old-fashioned hard-and-fast bounds of most creeds, like to the superannuated defences of many a continental town, have been contentedly dismantled by those within, or have fallen flat before the trumpet blasts of modern thinkers from without. Had these trumpeters been none but godless men of science, as the lovers of the old battlements at one time maintained, the symptoms would not have been so serious as they actually are; but when the higher dignitaries of the Church recruit the ranks of the levellers, and demolish, with a hearty good will, here the six days of the creation, and there the bolts and bars of an everlasting hell, it is no wonder that people in general begin to wake up, and take advantage of their enlarged horizon, to speculate whether there be anything worth knowing beyond the ruined boundaries which hem them in no longer.

The vast majority of the respective flocks still remain, doubtless, contented and unquestioning within the sheepfolds of Protestantism and Roman Catholicism, but there are an increasing number of truants, who place the honest doubt which leads to enquiry above the cut and dry tenets of any creed, who decline to admit that "another

man's doxy " is necessarily heresy and schism, and who on the whole gain in Charity where they lose in Faith. And it is consoling to know that a good authority appraised the former at a higher value than the latter.

The spirit of the age is, in brief, a spirit of enquiry into other men's beliefs, with the inevitable result that the enquirer finds there is much commendable, where he would once have been taught to believe all was beyond question condemnable. *Audi alteram partem*, is the motto of the day. Let us hear what the so-called Turk, Jew, Infidel or Heretic has to say before we decide that he is (almost) past praying for. Fetichism may eventually find partisans, or at least apologists, for aught we can tell; at any rate Buddhism, Mahometanism, Confucianism and Taoism have their admirers, and with respect to all creeds, whether religious or philosophical, there is a general feeling growing up that we ought to understand before we condemn.

The works of Chuang-tzū, as Mr. GILES is careful to point out, have no title whatever to be classed among the Sacred Books of the East, unless we make a radical change in the ordinary meanings of words. It is also true that Confucianism, which has often been vaguely spoken of as the religion of the educated Chinese, has no claim to rank as a religion. Of Confucius, Mr. GILES writes, (p. ix), " He taught his countrymen that *duty to one's neighbour* comprises the whole duty of man. Charitableness of heart, justice, sincerity and fortitude sum up the ethics of Confucius. He knew nothing of a God, of a soul, of an unseen world. And he declared that the unknowable had better remain untouched."

This is an excellent definition of Confucius' doctrines, and to define Agnosticism scarcely a word would have to be changed. Confucianism had never heard of a Supreme Being; Agnosticism has, but decides that God is a possibility without being a necessity. The wavering Christian has a tendency therefore to become practically a Confucianist, his Confucianism being termed Agnosticism because it retains an ineradicable tinge from a past belief. And in like manner the lukewarm Confucianist of the East, tired of what Mr. GILES calls the "hard and worldly" doctrines of his prophet,

degenerates into the untrammelled *far niente* follower of Chuang-tzŭ and Quietism.

Enough has been said to show that the enquirer into the moral systems of the Far East, who should neglect the study of Chuang-tzŭ, would have unduly narrowed his field of research. But there are few indeed of such seekers after knowledge, even among the remnant possessed of a fair acquaintance with Chinese, who could crack so hard a nut as Chuang-tzŭ in the original. An earlier version, from the pen of Mr. BALFOUR, was, it is true, in the field, but it must be admitted that Mr. GILES has brought to the task maturer powers, a greater practical knowledge of a translator's requirements and a more thorough command of forcible and idiomatic English. It is a difficult, nay, an impossible, task to divest a translation of this length of all the "*parfum de l'antiquité*," and the Eastern flavour which is essential to it; and, even if possible, such a deodorizing process would be undesirable. The smell of the oil is pleasant enough to those, who can appreciate what an arduous work the seven years of toil for his uncooth Rachel has been to the author. Whatever gratification Mr. GILES may derive from the completion of his labour of love, I trust he will remember he owes a debt of gratitude to his precursor. In 1882 he wrote, "I personally have no reason to be otherwise than grateful to Mr. BALFOUR for attempting a translation of the *Divine Classic*. His effort stimulated me to do that which I should in all probability never have done—read the works of Chuang Tzse from beginning to end." There may be some who doubt the lasting character of Mr. GILES' gratitude and who yearn with me to see him take in hand some abstruse but interesting author, who has hitherto escaped translation at the hands of a LEGGE or a CHALMERS, a BALFOUR or a BEALE. It is distinctly a matter for congratulation that, having, shortly after its appearance, satisfactorily demolished Mr. BALFOUR's version in the *China Review*, Mr. GILES dismisses the offender on this occasion with a Parthian kick at the end of the Introduction, and in a few disdainful lines condescends to

"let the foolish yeoman go,"

Writing chiefly for a class to whom the language of Chuang-tzū is unknown, Mr. GILES has succeeded in laying before them a translation which, while conveying the purport of the original accurately, as far as a cursory inspection has enabled me to judge, is couched in smooth and lucid English, vastly easier of comprehension to the Western reader than the original is to the Chinese. For such as appreciate caviare, the book will have an undoubted attraction. It cannot be said to be light reading, nor is it a work of such a kind that, when once taken up, you cannot relinquish it till it has been read to the end. On the contrary, even a reader to whom Browning is clear, will often have to lay Chuang-tzū down in order to think a passage over. Many a page will have to be read yet once again before the author's drift is grasped, and there are not a few sentences which will have to be treated as enigmas and given up.

For instance, we have on page 19 the following words:—"To take a finger in illustration of a finger not being a finger is not so good as to take something which is not a finger." Perhaps Mr. GILES understands what the above means: I confess, I do not. In any case the fault does not lie in the translator, it is an accurate version, I should say, of the Chinese; but if Mr. GILES does understand it, I think he might have enlightened meaner mortals in a note, for the import is far from self-evident. Possibly this passage belongs to the third class of renderings referred to on page xiii. In wrestling with the obscurities of his author, Mr. GILES adopted three sensible rules,—“Where there is a consensus of opinion [among the native commentators], I have followed such interpretation without demur. But where opinions differ, I have not hesitated to accept that translation which seemed to me to be most in harmony with the general tenor of Chuang-tzū's philosophy. And where all commentators fail equally, as they sometimes do, [see for an instance page 329,] to yield anything at all intelligible, I have then ventured to fall back upon what Chuang-tzū himself would have called the ‘light of nature,’ [for which see page 19.]”

It is doubtless by virtue of Rule III that Mr. GILES has been able to present some sort of a version of many a passage which would otherwise have had to be omitted. It would have been useful if such passages had been indicated by an asterisk, placed within

brackets, or otherwise distinguished. In a few instances, however, the fact is mentioned in a note. This bold determination to conquer where so many native commentators have failed, is evidence of considerable moral courage and landable self-confidence, and those who know Mr. GILES well, will feel sure that, in the absence of authoritative native decisions, the interpretations of "CHAI FU TZŪ" are as good as any procurable from his peers.

I do not propose to enter on a consideration of the contents of the book itself; if any desire to know what Chuang-tzŭ has to say, are there not booksellers? But it will not be out of place to offer some remarks on the way in which the work of translation has been done. Mr. GILES has taken a hint from Mr. IGNATIUS DONNELLY, and in so doing has placed his reviewers somewhat at a disadvantage. The author of the "Great Cryptogram," it may be remembered, did not offer a complete elucidation of his alleged discovery. He contented himself with giving a specimen of the results of his calculations, with some of the main features of the system by which these results were arrived at, and then with the calmness of conscious worth—or, the colossal impudence of brazen imposture—invited the public to take the rest on trust. Similarly Mr. GILES announces that this wholly English reproduction of Chuang-tzŭ is to be followed shortly by a supplement, consisting of such textual and critical notes as involve the use of Chinese characters in elucidation of his translation. It is obvious that to criticise renderings, while still unprovided with these coming explanations, is to work at a disadvantage. I shall, however, make a few observations of this nature, always premising that I am quite prepared to find Mr. GILES has in reserve arguments which may justify, even in my own eyes, renderings to which I now feel impelled to take exception.

At the end of his Introduction Mr. GILES states, that "only one previous attempt has been made to place Chuang-tzŭ in the hands of English readers." Of the works of Chuang-tzŭ, as a whole, this is perfectly true. But portions have found a translator between the appearance of Mr. BALFOUR's book in 1881 and the present version. It will be instructive to place some of these translations side by side, numbering them 1 (Mr. BALFOUR), 2 (the other translator) and 3 (the work under review).

1

2

3

(a) "You are as obstinate in your opinion as a man who keeps running round and round in the same circle."

(b) "This relief from the anxieties of life and death is as great as that experienced by one who, being strung up by the heels, is suddenly cut down."

(c) "When a corner is hacked (with a knife) it requires afterwards to be carved and worked."

(d) "In the beginning of all things, there was not even nothing. There were no names, these began afterwards."

(e) "Though a loud noise may be unheard by those who are close by."

(f) "The perfect man, though he walks in obscurity, meets with no obstructions."

(g) "I never meet with favourable times in my capacity of ruler."

(h) "Things which come together fortuitously—without any special cause or *raison d'être*,—afterwards part company in an equally fortuitous manner."

"You might as well try to imprison a man by marking the ground round him."

"A man suspended in the air may cut down another suspended man, but not himself."

"Guard them (men's hearts) from all external injuries."

"At the beginning of all things there was nothing; but this nothing had no name."

"A great truth cannot penetrate rustic ears."

"The perfect man can walk under water without difficulty."

"I do not serve my prince as the times require."

"The former (the superior man) having had no motive in contracting the intimacy, will have no object in breaking it off."

[p. 55] "Beware, beware, move cautiously on!"

[p. 81] "I am simply . . . hanging in the air, unable to cut myself down."

[p. 123] "But try to cut and polish it."

[p. 143] "At the beginning of the beginning, even nothing did not exist. Then came the period of the nameless."

[p. 154] "Grand music does not appeal to vulgar ears."

[p. 231] "The perfect man can walk through solid bodies without obstruction."

[p. 243] "Officially, I am not a success."

[p. 254] "The friendship of the mean man begins without due cause, and in like manner comes to an end."

1	2	3
(d) He looked southwards [to the abode of Lao Tszé] and was displeased."	"He became king but did not leave off [teaching.]"	[p. 294] "On hearing of this, Kêng Sang Ch'u turned his face to the south [towards the abode of Lao Tszé] in shame."
(j) "Saying, 'O ye, O ye who are above the first to incur the great troubles that there are upon the earth, are you not robbers, are you not murderers?'"	"[To this Lao-tzû] replied, 'My son, my son, are you then going to be the first to rid us of the great curses of the world with your 'Do not steal,' and 'Do no murder'?"	[p. 344] "'O Sirs, O Sirs, there was trouble upon earth, and you were the first to fall into it.' "I would say, Perhaps you were robbers, or perhaps murderers!'"

In the case of some of these passages, it is almost incredible that meanings so utterly diverse should be extractable from them. And it is, if possible, still more incredible that any one considering the renderings of, for instance, the sentence marked (c) in the 2nd and 3rd columns, should be able to maintain that the Chinese language is never ambiguous. Yet these two renderings are from the same hand, for translator No. 2 is no other than Mr. GILES himself, as may be seen in the *China Review* for July 1882. And who, in the face of Mr. GILES' new rendering of passages (d) (i) and (j) can doubt that Mr. BALFOUR will be able to gather some crumbs of consolation for the stripes of 1882 from the pages of Mr. GILES' Chuang-tzû of 1889?

It would be eminently unfair to deduce from the above passages that Mr. GILES seven years ago had only an elementary knowledge of the Chinese language. Not only unfair but grossly illogical, for to draw a universal conclusion from premises of which one at least is particular, is a fallacy such as would make him of Stagira turn in his grave. Yet it is sometimes done. The just conclusion to draw is that in 1882 Mr. GILES had given Chuang-tzû only a hasty consideration, and has seen reason to modify his opinions since.

In striving to put Chuang-tzû before the English reader in as easily intelligible a form as possible, and perhaps in some instances

from a wish to be graphic or to turn a sentence neatly, MR. GILES has ended by being at times misleading. What I would chiefly complain of is the rendering by one English word of divers Chinese expressions, which while perhaps reducible to one general category, are still of many distinct shades of meaning. It is a translator's peccadillo which MR. GILES shares with the authors of the Authorised Version of the Bible, so he errs in good company; but as this very *laches* formed one of the strongest arguments in favour of a revision, it is a pity it was not avoided here. The most glaring instance is of course the word "God," which some sinologists would say does not occur once in Chuang-tzŭ, but which nevertheless will be found liberally sprinkled throughout these pages. Waiving the objection which might be made that the Chinese can hardly be said to have a word for "God" (with a capital letter) at all, it would have been open to MR. GILES to select any one character which he thought would bear the rendering, and to have restricted the use of the English word to passages where that character occurred. But take the following sentences:—

- (1) "I played as a man, drawing inspiration from God." [p. 177.]
- (2) "Its name is then *of God*." [p. 194.]
- (3) "Were I to prevail upon God to allow your body to be born again." [p. 225.]
- (4) "It is the delegated image of God." [p. 282.]
- (5) "God will punish them." [p. 302.]

The unwary reader would take it for granted, and justifiably so, that "God" in each case represents the same idea in Chinese. But so far is this from being the case, that in each of the five the idea is different. In (1) it is *T'ien*, Heaven; in (2) *Ti*, a ruler or Emperor; in (3) *Ssu Ming*, the Controller of Destiny; in (4) *T'ien Ti*, Heaven and Earth; and in (5) *Kuei*, a devil, or, as translated on p. 236, a bogey. Only in this last instance does MR. GILES explain in a note this somewhat startling specimen of catachresis.

This wholesale reduction of many terms into one occasionally lands MR. GILES in a difficulty. For instance on page 41 there is a

passage, "He who is inwardly straight is a servant of *God*. And he who is a servant of *God* knows that the Son of *Heaven* [the Emperor] and himself are equally the children of *God*."

Here each of the words italicized represents the *T'ien* of the original: so that we have the anomaly of the same character translated in two different ways in as many lines. What Mr. GILES' dilemma was is of course obvious enough, but if he had elected to translate *T'ien* in the usual way the dilemma would not have presented itself, and the result would have been rather clearer and more nearly what Chuang-tzū meant to express.

Another case of misleading (here, I fancy, with the idea of being more graphic,) occurs on page 40:—"It will be as though you took fire to quell fire, water to quell water, which is popularly known as 'pouring oil on the flames.'" The enthusiastic proverb-hunter might well be excused for thinking he had run to earth in Chuang-tzū an excellent equivalent for a Western saying. But on turning to the Chinese he would find nothing about oil, nothing about flames, and not even the word "pouring." The Chinese is simply "making matters worse" or, more literally, "aggravating" [the difficulty or, situation]. Mr. GILES would have been quite justified in inserting in a note that in Europe we should speak of "pouring oil on the flames," but he ought to have kept it out of the text.

On p. 135 we read "Sovereignty begins in virtue and ends in God" (i.e., Heaven). I should say it is doubtful whether the character *ch'êng*, here translated "ends," will bear that interpretation. "Is perfected" appears nearer the mark. But this is a case in which the promised supplement may enlighten us. Supposing, however, that "ends" is tenable, I wonder Mr. GILES resisted the temptation of giving the dictum a prophetic turn. Translated, as it well might be, thus, "Sovereignty originated in pre-eminence and ended in divine right," it would have been startlingly applicable to the history of monarchical institutions.

We must look to the supplement, I presume, to reconcile the translation of a sentence on p. 137 with the original. The former reads, "He will not account a *throne* as his own private gain," but the Chinese, at least in the text I have followed, has no

mention of a throne, but has instead "the profits of a generation."

But with a wholesome fear of this ingeniously minatory supplement, which may reduce me to confusion when it appears before my eyes, I refrain from further textual criticism, and will close this notice with a hearty commendation of Mr. GILES' Chuang-tzŭ to the attention of the reading public, by way of valediction.

G. M. H. PLAYFAIR.

PROCEEDINGS.

*MINUTES of a GENERAL MEETING held at the Society's Library on
Saturday, 14th December 1889, at 9 p.m.*

The chair was taken by Mr. P. J. HUGHES (the President).
About 40 persons were present.

The CHAIRMAN, in opening the proceedings, said that the lecture which Dr. Macgowan had kindly undertaken to give that evening, was one which could not be otherwise than instructive and interesting, as it referred to a subject which had at least the charm of novelty to the general public. It was true that "Gynæocracy," or "Gynærchy," as he should prefer to call it, was probably known to some of them under a more familiar title as applied to a system of Government in the domestic circle. It was understood, however, that the lecturer did not propose to treat the subject as a social question of the present day, but as a political and historical question of the past. It was unnecessary to go through the form of introducing Dr. Macgowan to a Shanghai audience. As the Nestor of sinologues, he was known to most of them and respected by all; and his many valuable contributions to their knowledge of China and the Chinese had made his name familiar as a household word. He was sorry that the unavoidably short notice which had been given and the severity of the weather had prevented the attendance of many who would otherwise have been present; but among the numerous and representative audience there assembled, the lecturer would be glad to recognise some of his old friends and fellow-labourers in the field of Chinese literature; and he (the Chairman) had no doubt that Dr. Macgowan would receive the attentive and appreciative hearing which he well deserved.

Dr. MACGOWAN, proceeding to read extracts from his paper on "The Gynocracies of Eastern Asia," remarked that the unmelodious word shortened by Sir WALTER SCOTT into gynocracy meant simply what in domestic matters all right-minded men enjoyed—the sway of woman. On the present occasion it referred to political domination, yet it was not to be regarded as bearing on the question of the enfranchisement of women, but as a contribution to anthropological sociology, though perchance something might be found which could be made to fortify the views of advocates and opponents of that momentous question. He added to these prefatory remarks that he eschewed the use of the term "female" as not sufficiently respectful to the dependent sex—to whom the fittest, the reverential, sacred term "woman" or "lady" should be applied. Ethnographical observations commenced the discourse, to show the conditions of aboriginal peoples whom the Chinese found on the Yellow River on their arrival from Akkad. The Chinese then possessed the rudiments of civilisation, of which the aboriginals were destitute. That this irruption of the Chinese was anterior to the invention of cuneiform writing in Akkad was probable, because of their use of quipos or knotted cords in keeping records. Dr. Macgowan added parenthetically that on a future occasion he would explain his views respecting quipos, as they, and not mere tradition, were the base of Chinese archaic annals, and that from those quipos the earliest form of Chinese written characters was evolved. Anterior to these quipos, judging from certain neighbouring tribes, notched sticks were employed, which was an improvement over a plan by which certain Mongol Sachems kept account of the number of their soldiers and cattle. Into a hole in the floor of the tent sheep droppings were deposited, a pellet being dropped in or subtracted on every addition or loss of man or animal: by counting the store of pellets, the strength of the army or number of horses could be known. With regard to the tribes which the Chinese found existing on reaching their future home, Dr. Macgowan remarked that the philosopher of Universal Love—Motzu, proto-altruist and arch-heresiarch—whose sun was rising when the sun of Confucius was setting, enunciated views on the evolution of the State and Family which are in accord

with those of modern anthropologists. Men at first were in the lowest state of savagery : there was no Golden Age as depicted by sages and political philosophers until men felt the necessity of a remedy for the anarchy that prevailed. Practices of self-deformation were, some of them, remarkably curious, such as those of drinking through the nostrils, extracting of front teeth and substituting dogs' teeth, head-flattening, etc.; the most striking was the attempt to raise a polydactylous race, by destroying all children who came into the world with the usual number of fingers and toes, and thus the tribe had a dozen fingers and as many toes. Self-deformation might be taken as a differentiation between man and brute ; not even the anthropoid ape disfigured his visage to improve his beauty ; he did not tattoo himself, nor did his mate resort to tight-lacing. Man alone was given to such conceits. The first Queendom described was that which was established in Tongking at the beginning of the Christian era, the occasion being an attempt to throw off the Chinese yoke. In relation to the suppression of that rebellion, Dr. Macgowan remarked that the Chinese army would have extended its conquests in the South until the Dragon could lave in the Straits of Malacca, but for malaria, which in a single year destroyed half their number. But for that fell foe Chinese conquests would have annexed the entire Malayan archipelago long ago, and Canton would have become a northern port of China. Jungle-fever alone prevented Burma becoming a Chinese province in the latter half of the last century. The most remarkable gynecocracy was established on the South of the Karakorum Pass in Kashmir by a tribe of Chiang, who in the third century B.C. were driven from Eastern Turkestan. The sufferings of their flight across the Gobi desert and ascent of the Karakorum Pass must have caused them to reach their destination with very few surviving women, and polyandry was the result, and the system of plurality of husbands led to the establishment of hearth rule. Women were few and became dominant. In the course of their history the Karakorum Chiang, wearied by civil wars consequent on contested claims to succession to the sovereignty, resolved to vest the chieftaincy in a line of women, and applied to a dominant clan for two maidens to be their queen and vice-queen, which was

accorded, and when these died without female issue application was again made for a brace of girls as successors, a large amount of gold being sent as a present to the clan which enjoyed the hereditary right of keeping up the line of women sovereigns. Her majesty the queen of the Karakorum Chiang held a *levée* every five days in a nine-storied palace. No male held office except in the army, which was under the command of a generalissimo. Attempts at display were made at this court, the most striking feature being the horns which adorned the head-gear of the ladies, each sporting gold horns indicating the number of husbands possessed. Among a tribe of barbarians in the south tufts of hair indicated the number of husbands which the dames possessed. Comparing this court with the contemporary court of Heraclitus it is probable that while the barbaric display of the former would jar on the æsthetic sense as compared with the magnificence of the court on the Thracian Bosphorus, yet the decorum of the simple pagans placed them on a plane higher than that of the licentious Christian court. How long this polity existed it was impossible to discover; probably more than a century, possibly several centuries. It was not likely that of their own accord the Chiangs abolished woman rule; it probably existed until the State was subjugated by more powerful neighbours. Their constitution was the ideal of a commonwealth—rule with the consent of the governed; it did not appear that they became dissatisfied with their peculiar institution, seemingly they were content with the gentle, suave, benign and not unwise sway of mothers, wives and sisters. The whirligig of time had brought the descendants of the founders of this gynæcocracy under woman's sway; the Empress of India now ruled in that region and with the free consent of the governed. It was noteworthy that the men of this queendom, where women were excluded from every office except chieftainship, were less advanced in civilisation, less martial, less virile than those who committed the entire administration of the country to their wives. Whether their higher civilisation was due to that cause, or whether their greater progress induced them to adopt the polity, cannot be ascertained. Usurpation by a son of a queen led to the abolition of woman's dominion in the country, which became absorbed by China, when its

polyandry was gradually changed to less discivilising polygamy; and when their land became denationalised, each cultivator becoming owner of the soil he cultivated, they entered on a march of improvement, as did the Chinese when at the revolution (China's sole revolution, the only interruption in the continuity of her evolution), to which cause, with eligibility of every man to office, is due the progress that she has made. Erstwhile husbandmen enjoyed their land in usufruct only, during which period China was stagnant, or engaged in internecine strife. The lecturer went on to give notices of Malayan, Papuan, Siamese, Japanese and Korean gynecoeracies, concluding with those of China, empresses and female regents. It was not until the approach of the revolution that cases occurred—these cases were already known to history, and might here stand over, with the remark that fears of usurpations of empresses dowager acting as regentesses led sometimes (under the Northern Wên in imitation of Hung Wu) to the murder of mothers of heirs apparent, a practice restricted to an alien dynasty and strongly denounced by Chinese writers. It was chiefly among the aboriginal inhabitants that women chieftaincy obtained to this day. There was seldom an age in which one tribe or another did not afford examples—the more primitive the condition of these tribes the slighter was sexual differentiation as regards public governmental affairs, both civil and military. It was rumours respecting tribes of this kind which gave rise to fables and myths in Greece regarding Indo-Scythian Amazons. To the list of women rulers of China, which included empresses of execrable character as well as of character the most exemplary, must be added that of the illustrious lady who has just retired from a regency which must give her a conspicuous niche among the best rulers of her sex. A few remarks were added respecting the court of Rock-tiger, who for a few years held portions of Shensi and Shansi under his sway, shortly before the establishment of the Northern Wei. His Majesty Rock-tiger had a body of maidens numbering ten thousand, duly co-ordinated into seven ranks. To the cleverest was assigned the duty of superintending the astrological observatory—to check the predictions of the male Bureau. More interesting was his cavalry, a thousand strapping girls wearing jaunty, crimson caps, on steeds gaily caparisoned, as a body-guard.

Dr. ENKINS said that they had had presented to them a very interesting subject treated in a very interesting manner. It is well for the progress of ethnology to draw on the literatures of Asiatic countries for fresh facts. In the books of ethnologists of the present age, published in Europe and America, attention was devoted too exclusively to the modern savage as he was found in islands scattered about the ocean, but they could only arrive at safe conclusions in ethnology by joining the old facts collected in national literatures with the newly-gathered stories of modern travellers. This contribution of Dr. Macgowan's to their Journal would be welcomed by the ethnological and anthropological societies of the West. Prof. Huxley had divided races into three—the black, the tawny, and the white. He laid down a line from Lapland to the Malayan archipelago, and placed the Turanian or yellow races to the north and east of this line. Perhaps proximity to that line had something to do with the appearance of Amazons in history. In Homer they occupied a prominent place. Gynocracies had played a great part near that line, apparently from the union of race characteristics of opposite kinds, and quite as much from their clashing and rivalry. In regard to the origin of female rule, it was, he thought, the consequence of regency, and the hereditary principle in Governments was the principle on which it rested. In China for a quarter of a century resident foreigners had had the opportunity of judging of the success or failure of rule by a woman. The opinion was unanimous that the country had been wisely ruled. The fact was that woman was naturally possessed of those faculties which, improved by education, have led to its being frequently recognised in times ancient and modern that the government of a State was safe in her hands.

Dr. BOCK and Dr. FOCKE added a few words, and a hearty vote of thanks was accorded to the lecturer.

The meeting terminated with a vote of thanks to the Chairman.

*MINUTES of a GENERAL MEETING held at the Society's Library, on
Friday, 20th December 1889, at 9 p.m.*

The chair was taken by Mr. P. J. HUGHES (the President). There were about 50 persons present.

In opening the meeting the CHAIRMAN mentioned that as the proceedings of the last meeting of the Society, which was held on the 14th instant, had been reported in the local press, he would, with the permission of the meeting, dispense with the formality of reading the minutes. There were, however, a few matters not mentioned at the last meeting which it was desirable to notice. He was informed by the Honorary Secretary that the replies to the questions circulated by the Society early in the year on "Currency and Measures" had come in neither as readily nor as fully as was expected. Mr. Morse, who had kindly undertaken the duty of editing the replies, reported that the abstract of the papers which he was preparing would "be useful only to circulate for amendment and amplification." When the abstract was complete, it was proposed to print and circulate it, in order that the information might be checked and supplemented. It was hoped that all interested in the subject—and it was one which should be specially interesting to all engaged in commerce—would aid in making the information as full and precise as possible. He might add that at a late meeting of the Council it was suggested that the subject for a similar series of questions to be put in circulation next year should be "The Roads and General Means of Communication and Travel throughout China." With a view of obtaining information on this important subject, a list of questions was in course of preparation. When referring at the last Meeting to the forthcoming papers intended to be read or published, he should have mentioned that they had in the press a valuable paper by Mr. von Möllendorff on "Manchu Literature." It was also his duty to announce that since the Annual General Meeting of the 28th May the following gentlemen had been elected members of the Society:—The Rev. E. T. Williams and Dr. R. C. Beebe, of Nanking; Messrs. A. D. Startseff and G. Martinoff, of Tientsin; Messrs. Chesney Duncan and T. E. Hallifax, of Corea;

Messrs. Claude A. Rees and Otto Messing, of Shanghai. He now begged to invite Dr. Faber to favour them with some account of his paper on "Prehistoric China as revealed by the Chinese Written Character." The paper in its original form had been accepted for publication by the Council and would appear in the Society's Transactions at an early date.

Dr. E. FABER then read extracts from his paper on "Prehistoric China as revealed by the Chinese Written Character," which is printed *in extenso* on pp. 141 *seq.* of this volume.

Dr. J. EDKINS said that the exposition by Dr. Faber of the formation of the Chinese characters was most interesting and would prove useful, it was to be hoped, in alluring to the study of the Chinese writings a larger circle of students. In regard to Dr. Faber's chronology he thought it very far in the wrong. By assuming the age of Chinese writing to be no earlier than about 800 years before Christ, Dr. Faber placed himself in opposition to Confucius, to Mencius, to the Han dynasty scholars, to the classical school of the Tang dynasty, to the Sung dynasty critical school, and to the scholars of the present dynasty, who had carried research much farther than it had been carried before and in a perfectly independent manner. Dr. Faber was prepared to treat the classics as legend, and in doing so he was going against much valuable evidence. For example, there was the astronomical proof of the genuineness of the first parts of the *Shu King*. The Pleiades were now at the winter solstice about 145 degrees distant from the sun. But in the *Shu King* the Pleiades were only 90 degrees from the sun at the winter solstice. The precession of the equinoxes was nearly a minute a year. Taking it at fifty seconds, in 71 years the place of the Pleiades had moved a degree: hence the observation in the *Shu King* must have been made about 2,108 years before Christ. Anyone could make the addition of 50 seconds a year, and he would find it so. In this case we found astronomy in accord with Chinese chronology, and we had better, then, accept the statement of scholars in regard to the books in which this and three other similar observations of stars were found. Not that the book was entire or uninjured. It consisted of fragments, and in it there were many gaps. But

those of an astronomical kind showed that its earlier portions deserved their confidence. With this view the contents of the book agreed. The Emperor Yan gave his three daughters as wives to one husband, the Emperor Shun. Such a thing could not have happened in the China of the Chow dynasty or at any later period. The book that contained it must therefore be much more ancient. So with the geographical chapter, the *Yü Kung*. Dr. Faber said it was written in the Chow dynasty. But against this view was the fact that it had no Chow dynasty names. Its territorial divisions were the Nine provinces, the *Kien cheu*, names which had given place to others in the times of the Chow. So it might be shown in regard to the *Yi King*, the book of divination, that the names of five-sixths of its 64 sections were older than the Chow period and that they must have been the accepted names of the divining symbols many centuries before B.C. 1120, the time of Wên Wang. The completion of the system of Chinese writing only about three centuries before the age of Confucius was not capable of being harmonised with the fact that Confucius admired antiquity and studied with great reverence the classics which he edited. If they were such new productions, we should have found proof of it in his writings. So with Mencius. Mencius at the end of his work spoke reverentially of the line of ancient kings and sages ending with Confucius, a hundred years before himself. They were, he says, parted at intervals of 500 years or more. Yan and Shun, Tang and Wên, were his moral and political heroes; and to his knowledge the oldest of these lived more than 1,600 years before his own age. The passage was a splendid ending to a brilliant book and came from one who was a professed expounder of the doctrines of the ancient sages and was personally extremely fond of history. Thus Dr. Faber placed himself in direct opposition not only to Confucius but also to Mencius. Then it should be remembered with what earnestness the scholars of the Han dynasty laboured to restore the ancient classics. Could these able and learned men have been so far mistaken about these books as Dr. Faber's hypothesis implied? It was impossible; and so with the learned classical school of the T'ang dynasty. It was no easy task to overthrow

the results of their careful and laborious vigils. Then came the school of the Sung philosophers, followed at due interval by the critical school of the present dynasty. Truly it was a long array of authorities, distinguished for deep scholarship and critical acumen, to whose views and wide knowledge this theory of the late origin of Chinese writing is opposed. The critical school of the present dynasty, beginning with the seventeenth century and still flourishing, was specially worthy of respect. The "Bell and Vase" school of research began its career in the Sung dynasty. At present there were about fifty vases in the imperial collection marked in books as of the Shang dynasty; and in the inscriptions on these vases there were many characters which were written phonetically, so that the phonetic principle must have been adopted several centuries before B.C. 1120. Lastly, to account for the orderly development of the language since the first poetry was written, they needed the whole of the extent of the Chinese historical chronology, and could not do with less. A single tone took about a thousand or fifteen hundred years to grow up into accepted use. This natural law would find its scope for action much too cramped and confined within the restricting limits of Dr. Faber's new hypothesis. Recognising the utility of Dr. Faber's analysis of the characters and his study of their construction, his chronology of their origin needed to be firmly rejected, although he had supported his views with so much learning, so much Chinese reading, and so much knowledge of the subject.

Dr. WILLIAMSON, who said he agreed with Dr. Edkins on the subject of chronology, and who put a number of questions to Dr. Faber on points raised, mentioned that 3,000 years before Christ the Akkads, whose writing had only lately been deciphered, had libraries of two kinds—clay bricks and papyri—and hymns to their gods.

Mr. KINGSMILL said that were he to differ from the writer of the paper it would not be, as the last speaker, on the score of his having postdated the introduction of writing into China. Rather, he thought, that he had assigned too early a date for the use of the written character as a means of disseminating literature. There was

evidence, and very strong evidence too, that even so late as the time of Confucius the written characters were not so far developed as to be available for expressing thought and language generally. There was nothing unique in the spectacle of a nation advancing to a high level of civilisation without the possession of a written literature: the case of India, situated nearer to Europe and the West was a case in point. The Rig Veda was on good grounds assigned an antiquity of about fifteen hundred years before Christ, yet it was not till the successors of Alexander opened a path for Western civilisation that writing was introduced into India. The ancient Sanscrit literature was during all that period handed down by oral tradition, and not only the Vedas themselves but, extraordinary to relate, a mass of explanations and comments exceeding in size the original. Again, on the landing of the Spaniards in Central America, they found an advanced civilisation co-existing with an entire absence of writing: quipos did indeed exist and were used for keeping tallies and as remembrancers of the great events of history, but the idea of their representing language had never dawned on the inhabitants of those countries. Mencius, who had been appealed to on the other side and whose authority they would scarcely doubt, was very explicit on the condition of affairs in China. "When the traces of the royal power of Chow were extinguished, the art of ballad-making was forgotten and annals came into vogue," he tells us (IV. 2. XXII). As a matter of fact the period of the destruction of the capital by the Turks (*cir.* B.C. 770) marks the close of the ballad era. It seems difficult for us, brought up amidst the surroundings of a literature some two thousand five hundred years old, to realise the condition of a people well advanced in civilisation without the aid of letters, yet we have only to look back along the current of our own history to find that but for external circumstances we might have been in similar case. The old ballads sung by the bards at the court of the Welsh princes were the exact analogue of the ballads of the *Shi King*, and so late as B.C. 541 we find (*Shi King* XXXI) the King of Wu sending his brother Kicha to the capital of Lu to hear and see their representation, a work of complete supererogation did the ballads, as we are gravely told, exist in writing at the time.

Again, in B.C. 529 we find the assistant recorder of Chow praised for his profound knowledge in understanding the three *juu*, five *tien*, eight *soh* and nine *k'ia*. He, however, fails when he is asked about the *K'i shao*. "If he doesn't know this," is the remark, "how should he know anything more distant?" Even so late as the time of Confucius we find no mention of writing and reading. True, Dr. Legge, by one of those strange instances of mistranslation which are the scandal of sinologues, makes Confucius ask his son, "Have you read the Odes?" but the word rendered "read" is "*hsio*"—to learn by heart. The *Sün Yü* bears internal evidence that it was not composed till long after the time of the sage, probably some three generations, for in Mencius and his contemporaries we find unmistakable allusions to writing and reading, while not a single mention is made of either in the works attributed to Confucius. When, therefore, he tells us Confucius was afraid when he had made the *Ch'un-t'siu*, we find him using the same word "make" which is applied to composing a ballad. What Confucius really did make, and the result of which he feared, is hardly to be considered as what we recognise as the text of what is now called the *Ch'un-t'siu*, but then were lectures delivered to his disciples, which afterwards, written down in the time of his grandson, became known as the *Tso-chuan* or "Assisting Narrative" erroneously rendered as Tso's narrative, for whose composition a special sage, Tso King-ming, has been invented by the myth-makers. The *Ch'un-t'siu* itself was doubtless in existence in Confucius' time, but its structure shows that it was at best but a rude description of writing. Even as now printed, with its necessary particles supplied, it contains scarcely one thousand characters: in its original state it must have contained much fewer, and was probably not much advanced beyond the stage of quipos. It was not history, but merely the pegs on which history could be hung, and to enable it to be of any service the court *shis* handed down orally from one to another the tradition of the events. This was the work of Confucius, and as soon as the art of writing was sufficiently advanced to enable language to be portrayed it resulted in the present *Tso-chuan*. He had himself paid much attention to the early literature of China with reference to the subject of Dr. Faber's paper; he had taken up the subject with no foregone conclusion, and

the result was that he had to discard the genuineness of much of the so-called early literature. Allusion had been made to the *Shu King*, and he must express surprise that Chinese students had been unable to recognise the composite character of the work as handed down. The earlier portions of the *Shu* more especially are of this description, and consist of rude rhymes, generally of four characters, embedded in a crust of later verbiage which is frequently little better than a mass of rubbish. The most trustworthy of the ancient works, the so-called Book of Odes, really the ballads of the Chows, was, he was sorry to notice, but little understood by Chinese students, but a careful study could not fail to correct many of the errors into which they had fallen. Of similar construction to the *Shu* was the *Yih King*, a copy of which he had brought with him. If the cabalistic accretions were removed from the text they would find left behind what were probably meant to represent rude verses, and some of these he had translated and gave a specimen. The so-called early history of China, as the early history of many of the other nations of antiquity, began in myth and ended in legend. Besides this there was a vast amount of pure invention. They had heard quoted the pretended bases of the Shang dynasty, and his hearers would no doubt be surprised to learn that the 28 so-called Kings of that line were simply an old rendering of the twenty-eight mansions of the lunar zodiac. They would find these constellations appearing in ancient Persian in the *Bandahesh*, in India in the *Surya Siddharta*, and in old Chinese in the ordinary received twenty-eight *Shih*. Whence the names preserved in the *Kings* came he was not at the moment prepared to say, but their relations were apparently with the West, and the lists of the sovereigns bore internal evidence of having been evolved in the Han dynasty. It was doubtless comfortable to some minds to receive this mass of verbiage and rubbish as representing an ancient literature, and he envied Drs. Edkins and Williamson the frame of mind which led them to accept it because it was more agreeable to do so than to seek deeper for the truth. Unfortunately, with the writer of the paper, he was unable to bring his mind to this compliant state, and was glad in the interests of scientific truth that Dr. Faber had been bold enough to cast to one side the fetters of an unwholesome tradition.

Dr. FABER warmly thanked all the speakers for their interest in his paper, which had moved them to express their opinions on the subject. He quite agreed with Dr. Edkins that Chinese authors should be treated with respect and that their views should receive careful consideration. Chinese authors, however, were not so unanimous as Dr. Edkins' assertions implied. The principal dates in his lecture were taken from the best Chinese authorities. Neither Confucius nor Mencius, to whose authority appeal had been made, furnished any direct evidence in regard to the age of Chinese writing. Dr. Edkins seemed even to have forgotten the famous saying of Mencius, "Better no *Shu King*, than to place entire confidence in it!" Whether the established Chinese chronology was true or false did not at all affect the line of his argument. Mr. Kingsmill, who had given much careful study to Chinese antiquity, had already satisfactorily answered that point. He might, however, be permitted to remind Dr. Edkins that even on chronology Chinese authors do not agree. There was, for example, a difference of more than 200 years between the respective chronologies of the *Sz Ki* and of the Han books. W. F. Mayers (*Chinese Reader's Manual*, p. 366 Note) says:—"Numerous dissimilar schemes of chronology have been propounded by historical compilers, whose mutually antagonistic views sufficiently attest the unreality of the date for their speculations." There were almost no chronological data in the earlier parts of the *Shu King*. Chronology was still uncertain in the earlier time of the Chow dynasty: not even the chronology of the state of Lu, the native country of Confucius, could be determined beyond the beginning of the "Spring-Autumn" Annals, 722 B.C. Sze-ma Kwang, A.D. 1009-1086, got the credit of fixing the standard chronology; but he would call the attention of students to Choo He's account of the matter. He told them:—"When Kwang first made a chronological scheme, his earliest date was the 1st year of Wei-lee (B.C. 424). Afterwards he extended his dates to the time of Kung and Ho (B.C. 840). After this, again, he made his 'Examination of Antiquity,' beginning with the period of 'highest antiquity,' but he could give no dates of years earlier than the time of Kung and Ho. It was Shaon K'ang-tsie (A.D. 1011-1077) one of the most fantastic

writers of the Sung period, who constructed an arithmetical system and used history to paste it up, and who pushed his calculations up to the 1st year of Yao."—(Dr. Legge, III a, page 83, Note.) Thomas Fergusson, in his *Chinese Researches*, has done a great service to Chinese students by bringing together into one volume the results of all that has been written on Chinese chronology and cycles. After 268 pages of examination of evidence his verdict is: "The chronology of the Chinese can therefore only be considered as an elaborate *fictitious* contrivance, to put in narrative and historical order the traditions that have filtered through the outskirts of ancient civilised Central Asia, towards Chinastan; where at different periods, ontcasts and adventurous military chiefs, and even colonies, have found a dwelling-place, and have brought thither with them the traditions of their former homes, which gradually their descendants have imagined were those of ancestors, who had lived all the time of those traditions in China; and thus they appropriated them for their own glorification and that of their adopted country." Mr. Fergusson makes a very important remark on p. 3 of his work:—"It is partly because the annals of those un doubtedly ancient nations (Egypt, Babylonia, Assyria, etc.) *make no mention* of a coeval empire of China, that a reasonable doubt is suggested as to the reality of the chronology on which the antiquity of that empire is founded: for had China been in those times the seat of science and civilisation, and of the extent and power which are attributed to it, China would have had such a remarkable prominence in the social world that it could not have been unnoticed or unrecorded. It is this absence of any mention of China from the records of known ancient nations that even justifies a refusal to receive any part of its ancient history except with hesitation, and that also necessitates a most careful investigation as to its truth." Dr. Edkins referred to the marriage of Yao's two daughters to Shun as not in accordance with *later* Confucian morals. If not a myth, this story, however, compared favourably with stories related in the *Tao-chuen*, about the time of Confucius, and not at all in accordance with the moral standard of the Confucian classics. That geographical names were commonly older than any books which mention them, should not need mentioning.

Dr. Edkins seemed, moreover, to have forgotten that the division of China into nine provinces was ascribed to Chuen Hū, about 300 years before Yü, the names of which were the same as those of Yü, (Legge, III a 94.) The Emperor Shun, on the other hand, is said to have instituted the division of the empire into 12 provinces, (Legge, p. 38.) As Yü was co-regent with Shun, we find the two divisions of the empire, of which Yü's was regarded as the earlier and Shun's the later, very improbable. [See the chapter on the *Chow Li*, p. 202.] What the speaker had said as to geographical names applied also to the ancient names of the diagrams of the *Yi King*. He had no objection to *names*, only to their writing. Phonetic *writing*, he maintained, was not older than 1200 B.C., probably 800 B.C. He begged a careful consideration of the statistical table of written characters in the paper. Dr. Edkins' apparently strongest argument was taken from astronomy. "In the *Shu King* the Pleiades were only 90 degrees from the sun at the winter solstice." Dr. Edkins did not state that the stars mentioned for the summer solstice and those for the two equinoxes *could not be seen* at the time in China. (Chalmers in Legge III a, Pref. 92.) Dr. Edkins' assertion was in direct opposition to Dr. Chalmers' statement, who says:—"No doubt there was a *tradition* to this effect at the time when the *Shu King* was compiled, for the author, knowing nothing of the precession of the equinoxes, could not have adjusted them to the time of which he was writing. His 'examination of antiquity' (first sentence of Canon of Yao) was so far accurate, although the details of his narrative may and even *must* be mythical. Even Yao himself may be so The value of the astronomical part of the Canon of Yao, as a confirmation of the received chronology, has been much overrated. According to the obvious interpretation of the text, Yao had *reason* to expect the stars he mentioned to be in the equinoctial and solstitial colures. But what his reason was we are left to conjecture. It might be personal observation; or it might be tradition from his great grandfather, or from Noah himself." Thus, if Dr. Edkins wished his assertion to be of any value, he should first have shown that Dr. Chalmers was wrong. Dr. G. Schlegel published in 1875 a large volume of 927 pages and atlas, *Uranographie*

Chinois. This learned author found Chinese chronology to be far in the wrong, and calculated, from the astronomical data of the *Shu King*, the year in question at 17,827 B.C., or, according to another calculation by the same author, at 16,916 B.C. The difference of 900 years is, of course, trifling in comparison with that of Dr. Edkins' persistently defended chronology, which amounts to about 15,000 years! They might reasonably expect that Dr. Edkins would first settle accounts with other astronomical sinologues before, on such basis, proposing another "firm rejection" of a view based on firmer ground. The astronomical statements in the *Shu King* were too vague to be of any scientific value. Not a single star was mentioned, but a whole constellation. Dr. Chalmers (Legge, III a, Pref. 95) says:—"The angular value of the 28 mansions varies from 1° to 30°, and modern books differ materially from the older ones as to the dimensions of each." Nothing was said as to whether it stood at the horizon or at the culminating point, nothing whether in the evening, at midnight or at dawn. Dr. Edkins simply presumed that the Chinese, 4,000 years ago, were able to determine, to a minute, the culmination of a constellation by mere eyesight, for no instrument was mentioned. Dr. Edkins further presumed that they could determine the exact time of six o'clock. Yao himself thought it better to verify his star-observations by "the length of the day," "the movements of the people" and "the condition of birds and beasts." Further, Yao sent his four officers in four directions; according to some commentaries, to the four extreme borders of the then known Chinese provinces. Their reports could then not have reached the emperor until after a period of several months. All these details pointed to traditions outside of China, which were never understood by the Chinese. Dr. Edkins picked out only one fact and fitted that to his purpose. They might be sure that on such ground no scholar would agree with Dr. Edkins and "firmly reject" the solid and careful arguments of this paper.

Dr. JAMIESON said that he had felt it a great privilege when a few minutes before he had received a note from the Honorary Secretary, asking him to propose a vote of thanks to Dr. Faber for the interesting and valuable paper they had just listened to—a paper, he had no

hesitation in saying, which would prove the most important that had ever appeared in the Transactions of the Society. Those who had once been or were still students of history knew by sad experience that all history voluntarily constructed was liable to be deformed by falsehood: and without any unjustifiable amount of the scepticism which had been denounced by Dr. Edkins, it might be said that no record so formed, no matter how sacred or monumental, was worthy of implicit credence. But here the history, unconsciously inscribed on the language itself, was necessarily and infallibly true. There would needs be differences in the interpretation of it, but whereas, in the case of ordinary history, false interpretations of false records led us into a geometrical progression of error, we had, on the ground which Dr. Faber had broken, only to make sure of our interpretation by careful analysis in order to arrive at certain truth regarding the periods corresponding to the documents. The case was strictly analogous to that of the past history of our globe lithographed on the eternal rocks, where the animals and plants of ages long gone by had left indelible impressions which had only in comparatively recent times found their interpretation. Over these, countless generations of our predecessors had walked all heedless of the treasure beneath their feet. It was a like treasure that Dr. Faber had brought to light, and he (the speaker) was confident that he expressed the feeling of all who had heard Dr. Faber's exposition, when he proposed a hearty and appreciative vote of thanks to the lecturer for doing for Chinese what Max Müller and other eminent scholars had done for the primitive Aryan language.

The vote of thanks was carried by acclamation, and the meeting terminated with the usual compliment to the Chairman.

CHINESE ARCHITECTURE.

BY J. EDKINS, D.D.

To understand the architecture of a country it is necessary to have some knowledge of antiquity. All architecture rests upon the past and embodies the ideas of the men of earlier generations. If, for example, we approach a Gothic cathedral, we observe it may have on the outside rows of statues sculptured on the front, representing the prophets and apostles of scripture. They are intended to shew that the Christian religion, for the conduct of the worship of which this splendid church was built, was founded on the teaching of the men whose statues we see. If they are in rows, as in Wells Cathedral, there is an idea borrowed from Greek art, which loved to represent battles, religious processions, gymnastic contests, feasts, marriages and court pageants in this way. Entering we pass the fount, which reminds us that baptism admits a man to the Christian assembly. The thought then occurs that the door of the building is the gate of admission to the congregation, and that the building is symbolical in all its principal features. In the nave occupied by the assembly of worshippers, the congregation, which is entered by baptism, is symbolized. The aisles may possibly be separately assigned to men and to women, but are the parts of the one church. The mysteries and highest truths of the Christian faith are symbolized by other chief features of Gothic architecture. The whole has an adaptation to impress both the cultivated and the ignorant. Architecture in such a case has an effect of the most striking kind on minds

endowed with genius. So it was with Milton, whose familiar words I shall be pardoned for using here as a noble introduction to my subject :—

But let my due feet never fail
To walk the studious cloysters pale,
And love the high-embowed roof,
With antick pillars massy proof,
And storied windows richly dight,
Casting a dim religious light :

But the poet wished to describe the effect of music as well as of architecture on the worshipper, and he adds :—

There let the pealing organ blow,
To the full-voic'd quire below,
In service high, and anthems clear,
As may with sweetness, through mine ear,
Dissolve me into ecstasies,
And bring all heaven before mine eyes.

Gothic architecture is a medium for religious impression, and its parts are adapted for the conduct of Christian worship. Provision is made for the reader, the preacher, and the musical features of the service. The high arches of cathedrals are not only intended to symbolize celestial aspiration, but also to allow of deep impression being made on the audience by full and reverberating waves of sound.

I.—CLASSICAL CHINESE ARCHITECTURE.

It may be asked, if such be the aim of Gothic architecture and its successful result, what is the aim of Chinese architecture, and is it effective within its own sphere, only having regard to its original ideas?

First, I remark that in classical Chinese architecture *there is no distinction of an essential kind between sacred and secular buildings*. The farther we go back the more clear

does it appear that the palace was a temple and the temple was a palace. This same circumstance in the architecture of the Assyrians struck LAYARD and other students of Assyrian antiquities. The same fact appears in the old Chinese records. We are told in one of the first chapters of Mencius that Chi Sinen Wang, King of the Chi country, asked him if he should order the Ming tang in his territory to be destroyed, as many persons advised him to do. Mencius said, No; it was the hall for the emperor to announce correct principles of government in the assemblies of the barons. If you wish to act as a king ought, and practise the duties of a wise ruler, do not destroy it. This was his advice. The emperors formerly came, when they visited Tai shan, to hold here a great feudal assembly, to sacrifice to ancestors, to sacrifice to heaven and to reside in it themselves during their stay. This, we partly learn from Panku, who relates that Han wu ti, on visiting Tai shan, found there the foundations only of the Ming tang of the Chen dynasty. The time would be about B.C. 120. The altar and the hall were gone at that time. Chen kung, the great sage, sacrificed to his deceased father, Wen wang, in the Ming tang of the Imperial residence, placing his tablet in a subordinate position at the time of sacrificing to Shung ti. This was to confer the greatest possible honour upon his deceased father. In the Ming tang there was worship offered to the sun and moon, also an altar for burnt sacrifice, in which case the victim was laid on wood and burnt. When the covenant was made between sovereign and feudal barons the emperor sat on a throne nine feet high during the Chen dynasty, three feet high in the Shung dynasty, and one foot high in the Hia. The throne was a dais, and the emperor sat on it cross-legged. The commentator on the *Chow-li*¹, from whom I learn these

¹ See 考工記 *K'au kung ki*, the supplement to the *Chow-li*.

particulars, adds that when the covenant had been determined on, the fact was announced to the bright spirits, and therefore the hall was called the "Bright Hall," which is the meaning of the name Ming tang. We gather from this, by the way, the true explanation of the common phrase "Shen ming,"—spirits and bright intelligences. This phrase is much used in modern Chinese for worshipped beings who are believed to come and throng round the spots where sacrifices are offered and prostrations made. They also scrutinize and reward or punish the actions of mankind.

2.—*In the construction of the ancient palaces of the Chinese emperors there were three objects kept in view.* They were for religious purposes, for fœdal audiences and consultations, and they included private apartments for the emperor. The fœdal compacts needed to be confirmed by religion. The emperor was chief sacrificer, and there never was in China any notion of local sanctity in buildings. All the reverence attached to a palace is on account of the emperor, the brother of the sun and moon, and his ancestors.

It became convenient, when the sovereign was at home in his capital, for the worship to be performed at spots removed from the palace, but down to the present time the ancestral hall is still attached to the palace on the south-east. So also the great halls and courts where the emperor meets the princes and high officers are connected with the palace. The altar of the spirits of the grain and land is also as near to the palace on the south-west as the temple of ancestors on the south-east. The arrangement of buildings in the capital at the present time is therefore in principle like the old classical arrangement, which combines the three ideas of temple, hall of audience and private residence.

In the building of the Imperial capital all favourable circumstances must be combined. There was in ancient times no *feng shui*. This is a recent superstition. But it was

required to have lucky portents and begin laying out a city upon a lucky day. Ch'en kung the sage measured north and south with the gnomon's shadow. The gnomon was eight feet long. The time was noon on the day of the commencement of spring B.C. 1109. He used plummet-line and mason's rule, and the latitude was that of Honan fu, or $34^{\circ} 43' 15''$. The mats he used to lay out the palace were six English feet long, and his measuring-rod four feet and two-thirds long. This also is the English foot, the old Chinese foot being taken at eight inches.

The principal roof of the Ming tang was circular. The building beneath was square at the base. The idea was that of imitating the form of heaven and earth. It had nine rooms and eight windows.

There were two other chief buildings called Pi yung and Ling tai. The Pi yung was on the east, as it is now in Peking. It contains at present the stone classics, cut by order of the Emperor Chien lung, and the Imperial act performed there is the exposition of the classics before the assembled court. The old Pi yung was devoted to music, archery and the like functions. The Ling tai was employed as a cluster of offices for those officers who were engaged on preparing the calendar and calculating eclipses.

We find in the *Kau kung ki* that the dimensions of the Hia dynasty ancestral temple are given. It is there said to have been 14 feet deep and $17\frac{2}{3}$ feet wide. There were five rooms occupying the north-east, south-east, north-west, south-west and centre: each was fifteen feet square; the middle one was three feet wider from east to west than the others. There were nine steps on the ascent. There were windows as well as doors to each of the five principal rooms. The doors were four and the windows eight. Lime made of shells was used in ornamenting the building. At the main door was a separate hall, said by the Erya, a very ancient authority, to have been a school-room.

In this account of a Hia dynasty temple we see that the five elements' philosophy had a voice in the arrangement of rooms. The idea of the architect would be conformity to nature as interpreted by the physical theory of the time. The same occurs in the round hall of the Chow architecture. Roundness means the shape of heaven. The same architecture makes the circle rest upon a square, which is the earth's figure, according to the common idea of the Chinese in ancient and modern times.

In the Imperial temple of the Shang dynasty the idea of a double roof was introduced. The length of the hall was 56 feet. The emperor's platform was raised three feet. The roof was made double on all four sides. The object in this was to lend an air of greater richness and dignity to Imperial buildings.

In the Chow dynasty temple the breadth was 54 English feet and the depth forty-two feet. The height of the Imperial dais was six English feet. There were no chairs in those days. They were first used in China in the Buddhist period.

In the plan of a house the ancients were influenced by filial piety, which caused them to begin with the ancestral hall in the south-east of the plot of land set apart for the building of the palace. This, according to the *Chou-li*, was the idea of the architecture of B.C. 2200. Religion, as people then understood it, was a powerful sentiment in their minds. So in the First Book of Kings it is recorded first that Solomon built the house of the Lord and afterwards the king's house and the house of the forest of Lebanon.

The double roof mentioned as an accession of luxury, when compared with the simplicity of the Hia and ascribed to the Shang dynasty, B.C. 1766, has always continued to be a favourite ornament with the Chinese. It is noticed particularly in gate-towers, pagodas, and towers at the corners of walls. A desire was felt to increase

the appearance of gorgeousness in the imperial dwelling, and magnify the difference between the king's house and that of the common people. This effort became greatly intensified in the Chow dynasty. Then the palace assumed the majesty and beauty of the Ming tang. Many separate buildings began to be erected for each function of the king. The servants of the king or emperor (we may call him by either title) had the most multifarious duties to perform, and the offices were multiplied almost beyond belief; so in Peking at the present time the palace buildings and offices of Government are counted by hundreds.

So far as we have yet gone it will be observed that architecture was at first geometrical. Houses were built to the southward, and they faced north, south, east and west. The circle and the square were both introduced in imperial architecture. The simplest geometrical forms constituted the basis, and ornament was added later. The ancient Chinese built of brick with a wooden framework. The provinces which the nation then occupied are chiefly plains and broad valleys. The chief constituent of the soil is the loess, which is partly a subaerial deposit and has partly become diluvial and alluvial by the action of rivers overflowing every summer. There is also a good deal of yellow clay. Bricks were easily made out of these constituents. The climate was milder than it is now, and the labours of house-building were carried on in the winter. Nothing was found so convenient as brick for house-building, and nothing lends itself more readily to geometrical manipulation.

Chinese architecture then had nothing to do at first with the imitation of tent forms. The suggestion has been made that the concave shape of the eaves of Chinese buildings shews that the people love to remember the nomade life which they once led when they occupied tents of a conical form or shaped

like a house-roof. No such concave curve is seen in any old roofs in sculptures hitherto brought to light. In the Chinese books which contain illustrations to the classics the roofs of temples are indeed turned up at the eaves, but this, I think, must be an error. It would arise partly from an incorrect way of representing in perspective the lines round a corner, and partly from the habit which most people have of carrying the present into the past and making their ancestors responsible for their own peculiarities. The early architecture of the Chinese was plain, geometrical and practically useful. The love of fantastic curves in the lower part of roofs came into vogue later, and must be sought rather in Buddhism.

In the *Book of Odes* we have the grandfather of Wen-wang removing to the south of Chi-shan in Shan-si. This he did for the sake of peace. The tribes of Tartary annoyed him. He left them his old territory and cultivated new lands. He built a new home, and in erecting it used the plumb-line and a wooden wall-frame. Boards are roped together and earth is filled in between them. Such earth hammered down constitutes a wall, and this is still the mode of building used in the north in making earthen walls. When the wall is washed away by rain they build another. This simple style was adapted to an undeveloped state of society, and building by this method allowed houses to be very rapidly erected. Two doors were sufficient—the *kun men*, or “high” gate or outer enclosure gate, and the inner or answering or central gate.

On account of the universal belief in omens it was usual to divine by the tortoise to know if the locality selected was a good one. In ancient China we can judge of the customs of the people in the second millennium before Christ by the three older classics. In the *Book of Odes*, building was not commenced without an omen of a favourable character. This was done when Tai-wang moved south-west from the valley of

the King river, in which lay his old residential city Pin, to the south of Chi-shan, in the valley of the Wei river. He then inscribed on the shell of a tortoise certain lines, and upon scorching it received such an answer that he knew that the site he had arrived at would be suitable. The cardinal points were determined and the simple laws of ancient architecture were followed.

Orientation was made an important point, and there was provision for religious ceremonies. A burnt sacrifice, for instance, was offered even in front of private houses in summer, and on that occasion the altar was on the south-east, the worship being that of the god of fire. This seems to shew that the worship of the five elements was intimately connected with the ancient rules of house-building.

Beside the *kau men* and *ying men*, there was a gate called the "tiger gate," from a picture of a tiger drawn there, as the symbol of bravery. This was to add to the dignity of the master of the house. It was outside the *kau men*. Within was the "pleasant gate," from the representation probably also of that bird drawn there. Outside of it were lofty pillars or flag-posts and standard measures for markets to follow.

The art of house-building was spread among the Tartar tribes by the Cheu family when they took refuge from the tyranny of the Shang dynasty in the Pin country, fifty miles north-west of Si-an-fu, and rather near the western boundary of the province of Shen-si. There the aboriginal tribes had lived in loess caves. This kind of house is there very convenient, warm, well-protected and economical. The loess deposits where they occur are found in the valleys with a vertical front of uncertain height varying from a few feet to several hundred feet. The rude savages who had been living in a single room were taught to make double chambers and upper rooms by their new friends from civilized China. This their friends did by instructing them in the art of making bricks in kilns.

This seems to be the meaning of the passage *t'an fu t'an hinc*—"they taught the aborigines to make double houses and dig caves with the help of the kiln." Yet the commentators explain the passage differently, as if it was meant to say that the people were taught to live in kilns, and LEAOE explains that the houses were shaped like kilns. In RICHTHOVEN'S *China* there is a picture of houses in five stories one above another, all of them having arched windows and doors. There is an outside staircase connecting the houses of each story. On the opposite page is another front of a house hollowed out of a loess bank. It is fenced by a low wall on the outside. This house, hollowed out of a loess bank, communicates with the outside simply by three windows and a door.

On the whole the classical architecture had square and round buildings and double roofs, but it lacked the arch, and the modern *ting-tsz* was still undeveloped. Halls were matted. There were no chairs, but there were low tables. Lucky days were selected for building. The emperor's throne was a high dais on which he sat cross-legged and facing the south. His personal suite stood behind him and on his right and left. The ministers of state stood in rows on the east and west. In the open space between them, individuals came forward and prostrated themselves to speak to the emperor and answer questions. There were three audience-halls, that of the daily audience for a few persons, near the private apartments, that of the court generally, more to the front, and that of great festivals, still more to the southward. The arrangement was something like what it is at present in Peking. The ministers held batons in their hands, or writing brush and tablets. In the larger assemblies the greater part of the nobles and officers prostrated themselves in their places in an open-paved court which was unroofed. The emperor and his suite were on a raised platform which was roofed. In ancient times North China had a mild climate in winter, and the grandees,

clad in fox-skins, would not feel cold. The ancestral temple is specially marked out for admiration in the *Four Books*, just at the end, where Confucius is compared to a house whose encompassing wall is much higher than that of all common persons. An observer may see the beauty of a common house by looking over the wall. But the wall of the house of Confucius is several yards high. The disciple, in fervent love for his master, adds that it is with him as with an ancestral temple. It must be entered if its beauty is to be seen. When he said this he was thinking of the double roof, the vermilion pillars of the hall, and within the tablets and the offerings, with the beautiful ornamented vases placed in order before each. Before perspective was ever studied the perspective lines of light and shade caused by these objects would be in his mind, and he would pronounce the effect of the whole to be beautiful. It was the most fitting image he could find to represent the superiority of his master to all other men.

Architecture is introduced with the gnomon and its shadow. A vessel of water is hung up by a string so as to obtain a level. When meeting with this in the *Chou-li*, that valuable repertory of archaeological knowledge, no reader will fail to picture to himself the ancient artificer clad in coarse linen in summer, or sheep-skin in winter, determining for himself the level of water for the wall of a house he is building. To have his work strictly according to the cardinal points he marks the shadow of his gnomon. For imperial use there was a gnomon of which the length was eight feet, or $5\frac{1}{2}$ of our English feet. They had the plumb-line, by which they could make the pillars of wood, which supported the roof, perfectly straight. They had also the mason's rule, which they called *kwei* 規, and they used it to secure that the bricks of their walls should be laid evenly, and the walls themselves be both horizontal and and vertical.

According to the *Chou-li* the ancient art of house-building

was controlled by astronomy. It is mentioned that the mason's rule—*kirei*—was placed level with the sun at his rising and at his setting. The builders also looked at stars by night to ensure a perfect level, and to obtain an exactly south façade. In the old architecture of China this was viewed as very important, as it was also in Egypt and Babylon. In these countries the old civilization produced this scientific element in the buildings of the time. Heaven, earth and man are in harmony according to the Chinese idea, and the emperor's palace could not be erected otherwise than facing the south, four square, and with its four walls strictly north, south, east and west. At present it is admitted that the architecture of the pyramid builders was wonderfully accurate in its aspect as regards the heavenly bodies. The great pyramid was not only a tomb for the sovereign, but an observatory from which the stars as they passed the meridian could be observed from its interior with extreme exactness. It is therefore not more than what we might expect to find the art of the builder of palaces in old China also, but in a rougher way, controlled by astronomy and the principles of trigonometry. This part of the modern art of architecture in the West is without doubt traceable to the early Asiatic and African civilization, just as the trigonometry and geometry of the Greeks were suggested to them by the plumb-line, the water-level and the gnomon. It was not Euclid that discovered the properties of the right-angled triangle. They were known to Pythagoras, and before the time of Pythagoras they were familiar to the wise men of Babylon and of Egypt. He travelled in those countries and he was the first to introduce geometry among his countrymen. China also knew, eleven centuries before Christ, the properties of the right-angled triangle.

The capital city must be a square of nine *li*, and there being about six *li* in an English mile, the whole circumference is a mile and a half. It must be square and have three gates in each

wall. It is the city in which the emperor resides. In front of it on the south-east is the ancestral temple, and on the south-west is the altar of the gods of the land. This is just the arrangement followed in Peking in the plan of the palace. In front of it on the east is the Temple of Ancestors, and on the west the Shê tsi ran. The Emperor Yung lo erected this palace and the Manchus inherited it, occupying the old imperial residence when they conquered the country. But it is otherwise with the gates. According to the ancient plan the emperor's city had twelve gates leading from it. Behind was the market, and in front the emperor met the court every morning. Each of the twelve gates led to a street broad enough to allow of a carriage-way in the middle and a *trottoir* for men on the right and women on the left. The modern arrangement is different.

Imperial editions of the classics, such as the 欽定周官義疏 *Ch'in ting Chen kuan Yi su*, contain illustrations which deserve study, because they are the result of the profound examination not only of old texts but of sculptures rescued from mounds. Attention should be given to the well system of agriculture in this connection. Ancient China was always feudal, and the emperor could command the service of the people of each barony. Agriculture was the basis. The workers of the soil gave a share of their work to the cultivation of common land. In providing for labour in the erection of palaces and imperial temples, the feudal system supplied it, and as that system was based on the justice and benevolence of the sovereign, the people came, says an old classical record, like sons to work for a parent.

II.—ARCHITECTURE OF THE POST-CONFUCIAN AGE.

The architecture of the time when the power of the sovereign had declined in China became special by the changed conditions. Feudal chiefs ascended independent thrones and fought with each other for supremacy. A struggle for hegemony became an evil which was chronic. There was a two hundred years' war, and machines were constructed for taking cities, the mode of making which is described in *Métsi*.

This state of affairs led to rivalry in palace building. The Imperial revenue was in the hands of the feudal chiefs, and with the people's money they built beautiful palaces and surrounded them with pleasure-gardens. Among them may be particularly mentioned the park and palace of the Wizard Mountain, just beyond I-chang, at the entrance to the beautiful land of Szechwen, where there is now a British Consul and a foreign community of merchants. The fact that the gorges should have been selected as the spot chosen for the site of a feudal palace plainly shews that poetic feeling ruled. In fact, at that time, there sprang up a school of vigorous poetry which has never failed since to influence the literature of this country. The romantic element could not fail, therefore, to appear in architecture, and so we find it. In the architecture of the Han dynasty there is a most remarkable grouping of romantic creations with a reproduction of historic scenes of an exciting and didactic kind, for there are both. Should someone ask, how was the spirit of poetry introduced into palaces and temples in their construction? the answer must be, by painting and sculpture. It is said in the *Shi ki* that "the Emperor is lord of the Four

Seas. All people constitute his family. If his palace were not ornamental he would not possess sufficient dignity. The palace must therefore be richly ornamented." In the palace they recognized the need of depth in the suite of rooms or courts through which the visitor is conducted to the audience-chamber. The architect built with this in view; he had to conceal the sovereign and his family within a succession of courts. He had to provide him with pleasure-gardens. This was imitated by the sovereigns of all the kingdoms of the Chinese heptarchy. Their palaces and parks became all the property of the Chin dynasty in the end of the third century before Christ. By the Chin Emperor's command a palace was built in the Wei valley, near Hien yang, the capital, to represent that of each defunct kingdom, and the peculiar construction employed in erecting the palaces of each with their ornaments would here be reproduced. The Ah fang was the most splendid, being the favourite palace of the Chin Emperors. We can tell the style of the architecture, for it is believed by Chinese critics to be represented in the Chia-siang sculptures. In the scene referred to we find roofs, pillars, low couches, and various architectural details fully represented. There is an audience-chamber in a pleasure-garden: above it is a gallery, and in front of it a large, high tree. The gallery presents a queen sitting on a dais with five female attendants. Below is a king, or noble, seated on a dais, before whom two officers are prostrate and knocking their heads against the ground. The queen wears a five-leaved crown, and the king the court-hat of the time, rising in front by a straight line deflected outwards and having a flat top falling to the crown. The roof of the gallery has men for its supports, that is to say, the pillars of the roof are Caryatides, and like Mount Atlas personified. The roof of the audience-chamber is supported by round pillars having three simple straight mouldings

above, which relieve the angularity. The round wooden pillar rests on a round stone as now in the modern Chinese style. The roof is tiled without the modern concave. At the ends of the upper roof-line large bricks are deflected upward and outward to a point, to remove the angularity there. Peacocks and monkeys are sculptured on the roof-line, as also winged men and various birds walking or resting.

A great peculiarity of the mythological period was the representation of historical scenes. It was before the age of theatrical representation which began in the Tang dynasty, but was only thoroughly inaugurated at the end of the Sung. The historic groups on the sculptured walls of the Chün-siang ancestral chapel are an example of how architecture makes use of history as a teacher. The great men of past times live again before the visitor's eye. As he passes along the ancestral chapel in its three compartments the guide points out to him on the eastern wall of the central hall the sculptured form of Fu hi, founder of the national civilization, who was, as I suppose, an ancient Chinese monarch, who received reverently from Babylon certain instructors in architecture and civilization, and to express this thought vividly he appears with the mason's rule in his hand. What gave him power over the people was scientific and civilizing wisdom. The termination of his body is partly that of a fish. It ends with a fish-tail, denoting that the sculptured idea is foreign. In the classics, Fu hi had not a fish-tail. He was a man like other men, but we are now in the age of mythological architecture. He is closely joined by intertwining of the tail with that of Tsang kie, who also holds a mason's rule right angled. Shen nung follows with the plough, and the Yellow Emperor, who first taught the people in the loess country to dig wells, to divide their fields evenly for irrigation, and to wear dignified robes with broad sleeves and a girdle. The Emperor Yau follows, who taught morality; Shun

succeeds him, who taught astronomy ; and Yü, founder of a great dynasty, who, when immense floods checked the labours of agriculture and drove the people to the high grounds to live in tents, undertook the control of the rivers, and restored the land to the cultivators. Then the rise of the Chow dynasty is pointed out with scenes from the history and poetry of the classics. This is followed by groups of an exciting character such as assassinations and battles from the age of Confucius and the two centuries which followed. The rise of the Chin Empire is also sculptured. Here battles on bridges and in rivers and in the air occur, with tiger-hunts, grotesque groups to excite laughter, and many festive scenes.

With such sculptured groups the emperors and princes of the Han dynasty adorned their palaces. The artists of those times were extremely fond of grotesque scenes and monstrous shapes. The sculptured halls of that age are reflected in the poetry, which consisted of long descriptive pieces, like THOMSON'S "Castle of Indolence" or the separate books of the *Færie Queene*. The princes of the house of Liên gathered round them a choice school of literati and engaged them in discussions on the history of early times and on philosophical and religious dogmas. They talked about Confucius and Lau tsî, and wrote books for the princes and for the emperor. The subjects on which they wrote were politics, history, popular mythology, architecture and astronomy, and they compiled these works in prose or in poetry. A good number of them remain to us, and the discovery of the Chia-siang and other inscriptions and sculptures is a great help to the understanding of China as it was in the Han dynasty.

I learn from Lieutenant D. MILLS, who wrote to me in February 1887, when he had just visited the spot where these sculptures were exhumed, that, "the valley in which they

occur is about five square miles in area, and that the excavation was less than ten feet deep, but it would fill up quickly." The two gate-pillars stand in the excavation, rising about ten feet above the ground. The stone of these pillars has weathered brown. A large number of slabs have been taken out of the soil, and are now set up in an oblong tiled building, fifty feet by twenty, lining its walls without any orderly arrangement. Since the erection of this house other slabs have been dug out, and are piled on the ground in the house, which has no room for them upon its walls. The cutting on the sculptured slabs is about a tenth of an inch deep.

There would be village temples in the Han dynasty, erected to ancestors, as also to the gods of thunder, rain, and wind, and to the Great Bear and the gods of grain and agriculture. All have perished, because they were constructed with a wooden framework. The reason why this ancestral chapel of a prince, consisting of three chambers, has survived the storms and frosts of seventeen centuries, is that it was of stone.

A stone chapel with a stone roof entirely or almost entirely consisting of sculptured slabs and unsculptured slabs, was exposed to winds which blew dust upon it, and floods which dashed silt round it and filled up its interior, till it became buried more than twelve feet deep. The two stone pillars in front of it were twenty-five feet high, and are now buried to about that depth. This is a fact which shews what winds and floods can do in seventeen centuries in raising the soil. It also shews the supreme excellence of stone architecture, which is capable of preserving to us these valuable memorials of the China of the Han dynasty. The chapel dates from A.D. 147. The Pantheon is older by 174 years.

Lieutenant D. MILLS, in his visit to the Chia-sung inscriptions *in situ*, observed no traces of wooden beams in any of the stones belonging to the original chapel buildings. The

Pantheon in Rome when it has stood for eighty-three years longer will be two thousand years old. It is a circular building with a stone roof. The ancestral chapels in Shantung were rectangular stone buildings with two gables which fell in part many centuries ago, but the loess, with friendly assistance, buried the sculptured stones under the soil.² The buildings would in part be standing till quite recently, or the sculptured stones at least were preserved in good order where they fell. So far was this the case that the native archaeologists have been able to tell us to a large extent what part of the buildings was occupied by each particular stone.

The question must here be confronted, how much of the Han dynasty architecture is of foreign origin? In the *Archæological Survey of India*, kindly lent me by Mr. KINGSMILL, we find in the 1st volume, published in 1871, the question discussed how Greek sculpture is found occupying a place in Buddhist architecture. To this question General CUNNINGHAM replies, that Bactrian Greek sculptors would find ready employment for their services among wealthy Buddhists, just as later in the time of the Mogul Empire goldsmiths and artillerymen were employed by the sovereigns. It was a Buddhist custom to make gifts of statues and pillars to the monasteries. This gave continuous employment to many skilled workmen. In the city of Mathura, which lies on the Jumna between Delhi and Agra, there is a colossal image of Buddha the Teacher, measuring one foot across the palm. It would be thirty feet in height. The Chinese have such in their country, where the stone is easily cut and the Buddhist zeal of the community favoured the production of this kind of work. The statue was from 20 to 24 feet in height. Buddha

² In the island of Jersey there is a stone chapel erected A.D. 1111. Its roof is of stone. It has stood more than 700 years—a signal instance of the permanence of stone roofs—but the roof has been replaced recently by a new one.

is represented as the Teacher, explaining the law to his disciples. It should be remembered that the coming and the laughing Buddha are one. In one of the female figures the attitude is peculiar. The left hand is brought across the right breast while the right hand holds up a small portion of drapery. The head is inclined slightly to the right shoulder. The hair is dressed in a new fashion, with long curls on each side of the face, which fall from a large circular ornament on the top of the head. This figure has a plump face with a broad smile, and it is one of the best specimens of unaided Indian art which General CUNNINGHAM had met with. He goes on to notice specimens of Greek sculpture mixed with that of the Hindoos. The costumes of the sculptured figures are Hindoo, Greek and those of some other unknown nation. There is represented in one place a Greek altar such as was dedicated to Bacchus. Adjoining a well-carved elephant in one place are certain inscriptions which contain the names of five Greek kings, including Alexander and Antiochus.

In the fifth volume of the *Archæological Survey of India* the Doric character of architecture in Cashmere is illustrated. In some localities in North-Western India there was Indo-Corinthian and in other localities Indo-Persian. The Ionic style was introduced in Taxila and the Corinthian in Gandhara. All these styles flourished for several centuries. Thus, as far as stone was used in building, the imitation of Greek architecture and sculpture would naturally follow, and would spread into distant countries. But India, like ancient China, was well wooded, and, therefore, wooden pillars and beams continued to be used.

In the case of monasteries, pagodas, tombs and bridges, with certain other structures, stone was held to be better as a material. Civilization, commerce and national intercourse brought more and more wealth to the communities, and these buildings were erected by the gifts of individuals. In such

cases there would be a tendency to imitate Western art. This would gradually lead to the arch in bridge-building. So also the broad verandah, necessary in India to shade a bungalow from the sun, would lead to broad roofs, which were afterwards imitated by the Chinese.

The influence of Greek art would enter as an element in the Han sculptures in the following manner. The country being rich and at peace, many foreign improvements would be adopted. Workmen would be conveyed from a distance to do work for wealthy persons. These workmen would be instructed by skilled masters, who were either Greeks or the pupils of other masters who were taught by Greeks. In this way we may account for sculptured horses represented successfully in attitudes which without a long apprenticeship could not easily be produced.

III.—BUDDHIST ARCHITECTURE.

The third period of Chinese Architecture is the Buddhist. When the Hindoo Missionaries came to China to propagate their religion, they were lodged in an official building, called a *si*, and in consequence of this their monasteries were called *si* ever after. But the form they took in building was that of the Vihara, the Sanserit name for a Buddhist monastery. The Buddhist monastery in China may have native Chinese features in some things, as when, for example, we find there the hall for ancestral tablets, in which the deceased priests of the monastery are honoured with worship, wooden tablets being used, just as in Confucian ancestral worship. But the great outline is Indian.

There may be gate lions, one on each side of the gate. The gods of native Hindoo polytheism are placed in the entrances—

hall. This is the locality in which the defenders of the Buddhist faith should be honoured. Here also is found the laughing Buddha, the Buddha of the future. Then come the bell and drum towers. Within is the teaching-hall of Buddha. The normal height of the statue known as the "teaching Buddha" is 16 feet, which probably is represented by ten feet eight inches in English measurement. Much smaller figures are commonly used. The pictures or statues on the east and west or right and left of Buddha are his audience. They consist of the gods of Brahminism, and of renowned Buddhist saints. Behind in another large hall is either the sleeping Buddha, or the ascetic Buddha, or the guiding Buddha, who is called Omro Fo, or the Buddha of the future, Maitseya, surpassing all the forms of Buddha in height. The other buildings are numerous. They provide living-apartments for the abbot and the monks under him, refectory, rooms for guests, kitchens, store-rooms, library, halls for the worship of the inferior divinities of Buddhism, and for the complete representation, so far as practicable, of the Buddhist world of worship, of suffering, of joy, of punishment, of salvation. In a Buddhist monastery the object of the architecture, and of the sculptured and pictorial representations, is to exhibit the world as it appears to the Buddhist. Buddha is enthroned on the lotus as teacher and redeemer, and the universe pays him homage.

The lion is not an Indian animal, but is or was Persian and Syrian. The Buddhists borrowed it as an ornament in their mythological conceptions from that part of the world. The whole ideology of Western Asia pressed into India in the age of the Persian dynasty of Cyrus and in part before that time. The lion very soon appears in the Buddhist books, though not in the lifetime of Buddha himself. Why, then, did the disciples of Buddha in North-Western India eagerly adopt this animal as a symbol, the animal being foreign.

It was because they were disputants, and in combating with Persians, Greeks and men of other races who engaged in religious disputation, they found that the lion was considered king of beasts and the symbol of victory. It is found, for example, in the Book of Genesis and other parts of the Bible as a symbol of power, courage and victory. The north-western Buddhists adopted it, as they did images and cosmogony from the nations which lay on that side of India, and used it in the service of their religion.

The pagoda was specially a Hindoo mausoleum for relics of Buddha. It is surprising how little it is used in Japan or in Lamaism. Osaka has but one pagoda and Tokio none. It is very much connected with the *feng shui* superstition, which was never adopted by the Japanese, and with the worship of relics. The number of stories is always odd, because odd numbers are male while even numbers are female. To benefit a locality the pagoda must have the power of *Yang*, the male principle. It is the dark principle *Yin* which does mischief. Pagodas are often built entirely of stone or brick. Quite commonly they have sculptured entablatures representing the life of Buddha, or scenes in the biography of some Buddhist saint.

Many pagodas are very pretty objects, and they have come to be a special characteristic of Chinese architecture. The curling eaves of Chinese buildings are probably an imitation of some early pagodas. They were erected in large numbers from the sixth century onwards, and since China has no explanation to offer of curling eaves, it seems necessary to assign them to a foreign source.

The erection of pagodas was a test of the skill of native architects, many of them being lofty, and built without wood. That they have been fairly successful in erecting strong buildings is evidenced by the fact that there are more old pagodas existing than there are old houses or temples. From the

seventh century onwards, there are still structures of this class. There is an octagonal pagoda in Peking of thirteen stories, and it dates from the year A.D. 600. The sculptured figures are all of moulded brick, and this is the material which has been largely used in erecting this pagoda. It is 275 feet 5 inches in height. This building, so high and so well preserved, is a good specimen of the durability of some Buddhist work in China.

The efforts of Buddhist architects were very much directed to the provision of images of a large size and great variety. Several types grew up which had to be constantly reproduced in new erections. Buddhism teaches contemplation, and does so by images as well as by books. The propagators of this religion aimed to gain the popular ear by appealing impressively to the eye.

The laughing Buddha at the gate indicates that the religion there professed is the pathway of joy. The second form of Buddha is that of teacher. The teaching Buddha is therefore the central object in the principal hall. Around are seen his audience of divinities and human beings. In some other hall is represented the ascetic Buddha, it may be with unshorn head and the attire of a hermit. The sleeping Buddha is quite a favourite subject. Some examples of this type are very ancient, coming down from the Tang dynasty, and made of sandalwood or copper. The guiding Buddha leads the soul to Paradise. The rock-hewn Buddha, of 16, 30 or 60 feet high, is like the laughing Buddha, the Buddha of the future.

Another effort made by Buddhist architects was to represent the Buddhist world in its completeness, or specially some part of it. Five towers on a lofty terrace represent the universe, as north, south, east, west and centre. Such is the Wu t'a sī, or monastery of the five pagodas, in Peking. When ordered to pray for rain, the Buddhist priests arrange the images in a square in some spot in the fields which appears

suitable. The arrangement is made on this principle. Rock-work is much used to represent imaginary worlds. Mud or clay is the material, and paint of many colours is used to deck out in the gayest finery grottos, bridges, winding-ways among mountains, temples and lakes. Some scene may have been drawn by a poet, or the writer of a Buddhist work in prose. A time comes when a decoration is required in a temple under repair. The scene of a book is then realized in mortar and paint.

Other features in Chinese house-building which are a tradition of the Buddhist age are the screen before the gate, and the figures on the roofs. Both these features are connected with *feng shui*, which, being an article of popular belief, it becomes requisite to protect buildings from the mischief likely to be caused by evil beings moving towards a house and capable of doing harm to the inmates.

The screen of brick-work, built like the character *pa* (eight), does not appear in old sculptures and has no ancient equivalent. It is an unpleasant feature which ought to be dismissed from modern architecture, but *feng shui*, unfortunately, insists upon it.

So it is with the little monsters seen on the line of a roof or on the projecting ledges below. They must, like the stories of pagodas, be in odd numbers, in order that the *Yang* principle may prevail over the *Yin*. Though their forms are so sinister looking, they are all friendly, and their ugliness is put on for effect's sake. Their office is to deter evil spirits. The dragon and monkey are the types of these figures. Both are in odd numbers: the larger is the dragon, usually one only, while the smaller is the monkey, which may be three, five or more. I have been at some pains to learn what they mean, and this is the result. It is probably one of those architectural peculiarities which the Chinese may claim as their own. But this is not certain. From Shanghai to Suez, all along

the southern coast of the continent of Asia, the people believe in the active agency of evil spirits constantly in motion and seeking opportunities to inflict evil on mankind. Against them protectors are sought for of every available class, and among them are these creatures which suit alike the Arab, the Persian, the Hindoo and the Chinese.

The result was that in house-building it was felt to be necessary to use protective measures against the forces of evil always threatening danger to men. The gate-screen and the small monster on the roof have the same office as the charm pasted over a door, or the amulet, the small bottle, the bronze mirror, carried on the person. They were supposed to have a magical effect of a defensive nature.

The result was disastrous in an architectural sense. The gate-screen conceals the entrance, and is placed where it is not wanted. It must as such be displeasing. But popular superstition clings to the gate-screen. It lives still after many centuries of useless encumbrance. Outside the gate there is the *pa* character wall, within the gate is a screen. On each side is a lion. On the roof of the chief building are metamorphosed monkeys and dragons. We can bear the animal shapes for the sake of the grotesque, which human nature loves, but we cannot bear with the same equanimity the hiding of the front view. Our European training has led us to appreciate the excellent effect of an open view in front. To shut off from view the front of a building, is a mistake.

Gilding images was common in India about A.D. 500, and probably earlier. The Buddhists, by introducing the practice of gilding Buddha's image, greatly increased the impressiveness of their temples. This was a new element of beauty added to their architecture, which did not fail to affect the people powerfully in many ways. Let this point be well considered. In Europe, ent stone assumes a dark hue, especially in England. We enter a Chinese Buddhist temple as we see it in Hangehow

or in Peking. The beautiful colour of the gold image, untarnished after many years, is felt to be in itself pleasing. We then become conscious that to gild Prince Albert's Monument in Hyde Park and the statue of Victory in Berlin, was a useful preservative against weathering. The Chinese learned the effective use of gold in ornamentation from the Buddhists.

IV.—ARCHITECTURE OF THE MODERN PERIOD.

Printing commenced in the tenth century and, the Sung dynasty attaining power at that time, was accompanied by a Taoist revival. Of this there are several indications. The first Emperor, Chan t'ai tsu, had a Taoist friend, Chen twan, who, with the emperor's powerful aid, forwarded his own religious views. The predilections of the founder were shared by his descendants. Among them, Hwei tsung was a great lover of Taoism. The Fukien goddess Ma tsu, the sailor's favourite, belongs to this period. So also does the worship of Kwan ti, the god of loyalty, the favourite divinity of soldiers. Lü tsu, or Lü chun yang, the famous Taoist of the latter part of the eighth and the first half of the ninth century made Taoism popular near Lu shan, on the north-west shore of the Poyang Lake. Temples began to be erected to him in the twelfth century. The early Sung dynasty was then a time of rapid progress in popular Taoism. Nothing marks modern China more than the spread of Taoist worship in imitation of Buddhist worship, and this took place specially in the tenth, eleventh and twelfth centuries.

This fact implies a rapid spread of temple-building; that is to say, Buddhist architecture was imitated most extensively at this time. It was a foreign art in several respects, and

through its being very full of idealism, it won its way to the heart of the Chinese. As to the form of the monastery and the arrangement of the halls, this imitation doubtless began in the Tang dynasty. But there was then no extensive national imitation embracing all parts of the empire. This appears to have taken place in the Sung dynasty, as the examples just given combine to show.

In a large Taoist temple, such as the Tung yo miao, in Peking, in the first small halls at the door in the neighbourhood of the Bell and Drum towers, are certain military images. They indicate protection to the religion of which this is a temple. In this they simply repeat the idea of the hall of the four kings who, at the entrance to a Buddhist Monastery, take the part of the defenders of Buddhism. Beyond is the hall in which the god of the east mountain is worshipped. He takes the place of the teaching Buddha of Buddhism. In the temple of the god of medicine in Peking, in front are distinguished physicians of antiquity. Behind them is the central idol, that of Yü hwang. Farther still behind is the hall consecrated to the worship of the Three Pure Ones. Such a disposition of the halls and statues is mostly taken from the Buddhists.

We see, then, that the Confucianists had in the Sung dynasty ceased to be enemies to Buddhism. They saw that the foreign idolatry was popular, and they decided to leave it to work out its own future. They made deities of native origin, like Lâi chun yung, Ma tsu and Kwan yü, and everywhere temples were erected in their honour. Temples had been Confucian and Buddhist. They now became Confucian, Buddhist, and Taoist. An extraordinary number of new temples must have been erected in the Sung dynasty by the Taoists. The emperors favoured them, and this led the people to favour them also. The Ch'eng hwang miao in each district city and prefectural city seems now to be an

essential part of Chinese institutions. But it is not in fact older than the Sung dynasty in most cities. I have noticed one which was erected in A.D. 917, in the Wn tai period, so that probably this type of temple was first introduced in the Tang dynasty, but it was the partiality of the Sung imperial family for Taoism, and the tolerant political tone of the Sung literati, which spread this sort of temple and other types of Taoist sacred buildings throughout the empire.

In the Sung dynasty, the first part of the modern age of Chinese architecture, we have the results of the devotion of the nation to Buddhism during seven centuries. Two great forces have animated the nation since that time. The one was the Confucian and Taoist revival of the Sung dynasty, the other was the school of critical research of the present dynasty. The Confucian revival led to political toleration, and so foreign architecture, for example, might be imitated without offence. The principles of the Chinese Government from the tenth century forward have allowed men of different religions to reside together, and the magistrate is expected to keep the peace between them if they offend. The consequence is, that Hindoo, Moslem and new European architecture, in the erection of the sacred buildings of each religion, are seen together in China. Toleration of foreign religions tenets has favoured the mixing of styles in buildings and in art generally. This freedom of choice has been encouraged by the critical attitude of the literati in the present dynasty. China is now more eclectic than it ever was.

The school of critical research which has flourished during the last two centuries has paid special attention to the classics, and among them to the *Chou-li*, whence facts on ancient architecture are gathered. It is singular that there should be important differences of opinion on the manner in which the Temple of Heaven ought to be built, and whether Confucius ought to have a statue in his temple or not. The result of

researches in the Ming dynasty led to the abandonment of the statue of Confucius and the restoration of the old Confucian tablet. This was an instance of recoil from Buddhist views of art. Yet in some cities the statue remains, the decree of the emperor on the subject not having been very peremptory. But the spirit of modern China is against the use of statues in Confucian worship. The Buddhist love of statues in temples does not in any way influence the true Confucianist, who glories in his freedom from popular Buddhism. So also during last century it was decided not to have dual worship at the Temple of Heaven, but to worship there only the Supreme Ruler.

The Sung dynasty architecture is not specially known by examples, because it has been outshone by the works of the Yuen and the Ming dynasties, but it may be studied, because books printed with engravings exist, and there are much fuller details and materials for research in that age than previously. For the ancestral temple, for example, it is interesting to find that Chu fu ts'i made inquiry into it, and determined its essential features. The Chinese art of the Golden dynasty in North China remains in a few octagonal pillars inscribed with Buddhist charms. Sanscrit and Chinese characters are here seen cut in limestone.

Art rose higher in the Yuen dynasty, and the Ch'ü yung kwan arch and inscription, which have stood for six hundred years, shew that China at that time undertook to develop new types of architectural work. But the Yuen dynasty architecture was surpassed by that of the Ming dynasty. It was then that Chinese art rose to its greatest height. The Emperor Ch'eng tsu, of the Yung lo period, was the greatest of the Ming line. It was he that made Peking what it is. The plan of the city, the tombs, the great bell, the fortified passes in the Great Wall are his. These and the grandeur of the city gates and wall belong to the Ming dynasty and to him in particular. In

the time of Shun chī and Kang hi, an effort was made to improve the astronomical observatory. This was done by removing the observing instruments from the tower and replacing them by machines cast by VERBIEST and some presented by the French king. Underneath the tower is the chamber for observing the length of the shadow at the winter solstice and on other occasions. Peking is the only capital in the world on whose wall is seen a collection of large bronze instruments intended for astronomical observation. They lend a character of refinement to the city to which they belong.

The influence of the Emperor Chien lung was directed to the production of substantial architecture in various styles. His Buddhist, Confucian, Moslem and Italian erections were well done in their day. Yet now the relentless changes wrought by time have reduced many of them to a ruinous state. His Italian structures at Yuen ming yuen were burnt in the war of 1861. High civilization and refinement led this Emperor to look kindly on fashions of all nations and to take pleasure in introducing them into his country. It will never cease to be a subject of regret that the buildings in the parks outside of Peking were burnt. There must be something wrong when it is found necessary to burn works of art.

In the changes made by the Emperor Chien lung in the temple of Confucius there is a distinct aim to restore the ancient classical structure—the Pi yang kung. The brevity of classic texts renders exact restoration to a large extent conjectural. In this case there is a circular marble tank. In the centre is a hall in which is a throne for the Emperor when he expounds the classics. The south face of this hall consists entirely of lofty doors admitting light through thin bamboo paper.

In the architectural works of the present dynasty, as of the Ming, the *feng shui* ideas have never been abandoned. China has ceased to build new pagodas for the sake of riches

and prosperity to a locality, but she puts the old ones in repair when money can be obtained for the purpose. The roofs of temples are still ornamented with a view to *feng shui* opposite to the openings of lanes in Peking. Lions are set up, or stones with the powerful name of the Tai shan god, to frighten away demons who might be intending to come that way. The superstition of *feng shui* is retained in house architecture even in this age of growing knowledge. In judging of Chinese architecture there are two chief divisions of work to be looked at. The one is its general excellence, the effect of dignity, solemnity, richness and grandeur on the whole. The other is the special excellence of the parts. In both there is room for the greatest genius. In regard to the former, it may be noticed that the greatest triumph of Chinese architecture is in the effect on the whole. In the Ming tombs we have the perfection of Chinese power of arrangement. It is a ride of seven miles from the entrance of the valley to the tomb of Yung lo. The valley is occupied by the thirteen tombs. At the entrance the marble gateway attracts special attention. Ninety feet long by fifty high, composed of marble, and seeming to be roofed with tiles, it is seen from a great distance, and it has stood for three centuries and a half. On nearer inspection it is found that the roof is cut marble, and when this fact is observed, the whole structure is seen to be a remarkable triumph of architecture. The P'ai len of China takes the place of the triumphal arch of Europe, and this one at the Ming tombs is the best in the country. It was erected at a time when the Chinese building and bell-casting art reached their culminating point. The original red and green colours have long since weathered down to a sober grey. Passing this we proceed through several avenues of trees and several gateways till the avenue of animals is reached—a truly striking feature. Lions, unicorns, camels and elephants stand and kneel in pairs. The four elephants are each cut

from one stone. They are 13 feet high and 14 feet long. Thus it is seen that the Chinese are capable of Egyptian effects in working in stone if only their country did not consist of alluvial plains, which necessitate a brick architecture. Then the hall for sacrifice is the third great feature. It is 70 yards long by 30 deep. The teak pillars, 12 feet round and 32 feet high, are 32 in number. The building is 64 feet high. It is reached by a marble ascent of 18 steps, and is surrounded by beautifully-carved balustrades. The roof juts out 10 feet beyond the walls on which it rests. The fourth great feature of the Ming tombs is the tomb itself, above this passage. In front of it is a mass of solid stonework which supports the monumental stone on which is inscribed in characters of enormous size the posthumous name of the Emperor Yung lo, who died A.D. 1425. Beneath is the coffin-passage, 39 yards long, conducting to the tomb-door, and the visitor arriving there ascends to the platform above by a long staircase. Here the stone, three feet thick, two yards wide, and high in proportion, with the Emperor's name on it, may be observed. It was originally painted with vermilion. Then there is the mound, half a mile in circuit, containing a hemispherical chamber, in which is the coffin. The chamber is large enough to hold probably 400 persons.

In this work of construction we see Chinese architectural skill at its acme of power. So many remarkable features combine in the Ming tombs that we must in this instance award to Chinese architecture the praise of success in imparting to the imperial tombs an air of great dignity and solemnity.

Chinese art is to be praised for the lightness and grace of the curve of a heavy roof. The Greek loved to see lines of beauty at the head of a column, and a succession of columns seen in vanishing perspective has a very lovely effect. The

effort of Chinese art is rather to lighten the appearance of heavy masses of timber in a roof by curves and the use of coloured tiles.

In the modern style we find the shaft of a column carved with dragons, and this mode of ornamentation has lately become commoner than it was. It is observable in the guild-houses of Ningpo and Hankow. If in Shanghai commercial guilds should build new houses suitable for theatrical performances, this kind of ornament would be adopted.

We also find in modern style a special development of the *ting t'ai*. This first occurs in the sculptured halls of the Han dynasty. An ornamented roof rests on pillars. The pillars enclose a space which is open all round. We see it in the baldacchino of Romish cathedrals, in the kiosk of Constantinople, in the summer-house or arbour or bower of a pleasure-garden, and in the building over the stage of a Chinese theatre. The roof of a *ting t'ai* may be very simple, as when made square with four slopes, or very complicated, as when gables and slopes alternate. Examples of rich variety in the roofing are seen in many theatres and in the corner towers of the Peking Palace wall.

In the Temple of Heaven the altar is carried to its highest point. Its circularity, its marble pavement and its numerical arrangement deserve attention. It is 90 feet wide at the top where the emperor kneels on the circular stone in the middle. He faces the north while kneeling, and in front of him is the tablet of Shang ti, the Supreme Ruler. Round the circular stone are eight concentric circles of marble stones. Nine stones make the first of these circles. Double that number form the next. Twenty-seven, thirty-six, forty-five, fifty-four stones form the next four circles. The three outer circles have sixty-three, seventy-two and eighty-one stones. These circles represent the universe, which consists of nine concentric spheres. This symbolism also occurred

in Western Asia, and the city of Eebatana, for example, was built on a plan which exhibits the same principle as its foundation. The marble stones on the middle and lower terrace of the altar are also placed in circles. Outside of them are the boundary-walls of the altar, which are also circular. The lower terrace is 210 feet wide and the middle one 150 feet. There are four flights of steps connecting the upper, middle and lower terraces. The altar is 16.95 feet high. When the emperor worships here, which he does twice a year, he acknowledges Shang ti as his superior, he himself representing the universe symbolized in the mystic numbers of this unique and beautifully-proportioned structure.

We also find bridges greatly improved in the modern style by adopting the arch. This came in with Buddhism, for we find it in the pagodas. At present it is used when it is desired to span rivers by bridges. Made with an arch for foot-passengers, such structures look well to the eye, but they are inconveniently steep, being often 30 feet in height. Such bridges are made with steps so that they are crossed easily by burden-bearing coolies. Beasts, however, cannot easily use them, which is a great defect. The appearance of these bridges is agreeable to the eye, and they last long, because the superincumbent weight is efficiently sustained in the most economical manner by the arch. Many bridges in modern style would be better for being not so steep as they are, and for not being made with steps. They ought to be built not only for longevity and elegant appearance, but for the convenience of traffic. The custom in China is for the rich to erect bridges and dams from charitable motives, and in order to obtain benefits in return from the unseen powers. The money is forthcoming, however much may be required, because of the charitable disposition of the donor. It might be, however, better used than it often is, and much greater convenience for the public

secured. There is often a want of economy in the expenditure. The Chinese are ready to give, and many of them are very rich, but they might give more wisely than they do.

Ultimately, in regard to railway construction in this country, the rich natives will bear a chief part of the burden. There is a large quantity of wealth in their hands. For this purpose, at present, they will not give as they would for a costly bridge. No one would praise them for it. They do not think that the unseen powers, that make men rich and give men many children and grandchildren, will favour the opening of railways as they do the construction in convenient spots of bridges and embankments. When they learn to feel this, and are convinced that the Buddhist doctrine of moral fate which influences their actions approves of railways, the money will come and come in abundance.

•• For illustrations of Chinese Architecture the reader is referred to works containing plans, engravings and photographs. Among these may be mentioned THOMSON'S *Views of China*, the plates to *Macartney's Embassy*, PÈRE ZOTTOLI'S *Cours de Littérature Sinica*, *Mémoires concernant les Chinois*, and various recent books of travel in China.

The number of photographs taken by natives is now so great that there is scarcely a remarkable building in any part of China of which a good photograph may not be obtained at Shanghai or elsewhere.

NOTES ON THE NESTORIANS IN CHINA.

BY E. H. PARKER.

The following notes may perhaps assist a little in elucidating several obscure points in connection with the Nestorians, Persians and Arabs living in China during the period A.D. 600 to A.D. 1200. It appears to me not unlikely that the Nestorian missionaries never reached the coast of China at all, and that their "heresy" was always tinged with the native superstitions of the Ugro-Tartars, through whose territory it filtered into China; also that it, and possibly other forms of early Christianity, were somewhat coloured by one or the other of the two leading forms of Buddhism; and that the lines of demarcation now drawn by dogma were not so rigid in those days as they are now; in short, that men were more tolerant.

1.—WERE THERE EVER NESTORIANS AT CANTON?

The late Mr. BOWRA, in a paper upon the *Christian Missions in Kwang Tung* [*China Review*, Vol. II, Page 246] says that he could not satisfy himself that the Nestorians ever went to Canton.

Mr. GEO. PHILLIPS quotes an extract from the *Annals of the Canton Customs* [*China Review*, Vol. VIII, Page 31] which makes mention of Persian Priests at Canton, in order to justify the identification of these priests with Nestorians. He confirms this supposition by citing a statement, found in

RENAUDOT'S translation of the *Ancient Accounts of India and China*, that there were many Christians residing at *Cangfu*, which place Mr. PHILLIPS inclines to think is Canton [I suppose "*Kwang-fu*"] because we can find no mention of Arab or Persian ships frequenting Hangchow at that time.

There are several extracts from a book called *Ch'eng Shī* [程史, I suppose of the *Sung* dynasty] which shew that there were other foreign priests at Canton during the middle ages besides Persians. "One of the most influential of the sea-foreigners [海獠] was one named *P'u* [蒲], known as the "white barbarian," who was originally a prominent man in *Ciaupa* [占城]. Having had rough weather on his voyage, he was afraid to go back, and begged his ruler for "permission to remain in China so as to facilitate his trade." An extract from the *Sung Shī* says that most of the people at *Ciaupa* are surnamed *P'u*; and another extract says that the Caliph Empire sent an envoy named *P'u-sz-un* [蒲思那]; all which looks as though Arab traders were meant in each case. Again: "At Canton [番禺] there are sea-foreigners [海獠]; for praying happiness they have a hall; in the hall is a stone slab, which is the object of their symbolic worship [像主], and those doing obeisance all turn towards it. They meet to eat at dawn, but do not provide spoons or chopsticks; they use gold and silver to make a great trough, and mix porpoise flesh, [鮓] vegetables, grain, and rice all together, sprinkling rose-water, and scattering camphor."

The word 獠 is, as a rule, specially applied to the frontier tribes of Yün Nan and Burmah, but that Arabs may have been included is evident, because the *Sung Shī* says of *Ciaupa*, and also of *Tu-li* State [Yün Nan]: "Their customs and clothes are like those of the Caliph Empire," which last name is often grouped with those of other Indo-Chinese and Archipelago states, doubtless because the Arabs traded there.

The Chinese occasionally confuse the Persians with the Arabs. For instance, the *T'ang Shu*, on the subject of the Caliph Empire, says:—"Between the years A.D. 605-617 "there was a Persian man tending herds at Medina [摩地那] "Mountains in *K'ü-jên* [俱絳]. A beast in the mountains "said:—"East of the mountain, in the third cave, there is a "sharp weapon, and a black stone with white writing on it: "whoever gets it will rule." He went, and found it so. The "writing said he ought to rebel. He wheedled the people, "and got together a multitude of desperate characters at the "River *H'eng-shuh* [恒曷水]: robbed caravans, occupied the "west part of the region, set himself up as king, removed the "black stone, and treasured it. The people of the state went "to chastise him, but were repulsed with great loss."

This, of course, is Mahomed, who was a tender of camels; who did spend time in a cave near Mecca; who framed his Koran with the aid of a Persian Jew and two Nestorians; who did hoax the people; took refuge in Medina, and set up there (in the western part); whilst the black stone "brought by the angel Gabriel" is still in the Caaba. The account of *Méhtshuo* State [默德那] given by Dr. BRETSCHNEIDER on Page 177 of the *China Review*, Vol. V, confirms this strongly.

2.—WERE THE *Ta-t'eh Seng* ALL NESTORIANS?

It is a question how far the expression *Ta-t'eh Seng* [大德僧] can be taken to refer to Nestorian missionaries. Mr. G. PHILLIPS, criticising Dr. BRETSCHNEIDER, has shewn [*China Review*, Vol. VII, Page 412] that, in or about the year A.D. 719, the ruler of *Fuh-lin* [拂菻] sent two of these ecclesiastical dignitaries to the Chinese court with tribute; and he justly inclines to the view that these were Nestorian missionaries, inasmuch as *Olopen*, the introducer [A.D. 636] of Nestorian Christianity into China, is also described on the celebrated Si-an Fu monument as being a *Ta-t'eh*,

Dr. HIRTH, in his work *China and the Roman Orient*, quotes the same passage, and also quotes a passage from the monument itself, which latter seems to mean that, in *Ta T'ien* or *Fah-lin* Christinity is the only religion, and that Christians only can be rulers [法非景不行：主非德不立]；adding that Colonel YULE had already conjectured that the *Fah-lin* missions were connected with the Nestorian arrivals recorded on the monument, [Page 284 of the *Identifications*]. On the other hand, the old *T'ung Shu* tells us that, during the reign of *Ming Huang* [713-762], the King of Central India *Isharuma* [伊沙伏摩] sent his *Ta-t'ih* priest to court with tribute；and that, about that time [750], at one *Chang Yih's* suggestion, ten *Ta-t'ih* priests were banished to *T'ing-chou* [south of Peking].

An extract from a work of *Peh Kū-i* [白居易, lived 772-846], on "A Pagoda Slab of the *Ta-t'ih* Priests [大德和尚塔碑]" says：—"Abstinence begets calm, calm begets wisdom, and wisdom has begotten 84,000 *Fah-mén* [法門, "sectarians]." It is evident that the *Fah-mén* must have been different from the ordinary Buddhists, for the old *T'ung Shu* says：—"The Emperor *Wu* of *Liang* was a devout Buddhist, whilst [his successor, A.D. 550] the Emperor "*Kien Wen* was an ardent *Fah-mén*."

The *Wén-kien Hsu-luh* [聞見後錄, apparently the same as, or a continuation of WYLIE'S *Wén-kien K'ün-luh*, 11th century.] says that in *K'ü-gang* town of *Fing-siang Fu*, a piece of Buddha's bone lay buried under the pagoda of the *Fah-mén* monastery, and that the Emperor *Hien* [806-823] had it brought with great ceremony into the palace, in spite of *Han Yü's* remonstrances, [as to which remonstrance see *China Review*, Page 341 of Volume 1].

The *Ta-yang Tsah-pien* [杜陽雜編, 9th century] says that "in the spring of the year A.D. 873 an imperial order "commanded the *Ta-t'ih* priests to go and welcome Buddha's

"bone. On the 8th day of the 4th moon, it was brought into "*Ch'ang-an* [Si-an Fu]: the Emperor sat in the *An-fuh* "Monastery [安福] and personally *koutured* to it." Another passage says that "several hundred *Ta-tch* priests were "ordered to welcome the Buddha's bone of the *Fah-mén* "monastery of *Féng-siang Fu*."

3.—WERE ALL *Fah-mén* BUDDHISTS?

A work called the *Wu T'ing Hwei-yüan* [五燈會元] says that the first Buddhist apostle in China [東土] was the Worshipful *Dharma* [達摩尊者] who was also the last of the line of 28 in India [西天]. He was the son of *Hiang-yü* [香玉], king of Southern India; and in the year A.D. 520 he came to China by the southern sea route, and stayed at a temple called the *Shuo-lin Sz* [少林寺]. This man must not be confused with another *Dharma*, a painter, who came by land to Sz Ch'uan in 580-605. His name was 達摩拙父. The *Kai Seng Chuan* [高僧傳, a 6th century work], says that his successor was one *Hwei K'a* [慧可], who stood in the snow and cut off his arm whilst begging inspiration from *Dharma*. *Dharma* said:—"My religion is in the heart, and "ignores written script: apostles must be bound by the heart. "Hence the saying 'stamp in the heart.'" The old *T'ung Shu* gives the same account of *Dharma* as that above; and the *Sung Shih* says that *Hwei-ko* brought out a work on the human pulse by *Dharma*. A work called the (*Ch'uan-fah*) *Ch'eng-tsung Ki* [(傳法) 正宗記] says that the third apostle [三祖] was the priest *T'sau* [僧粲大師], but that nothing is known of his origin, except that he came from the Northern *T'si* [Tungusic Empire 550-580], and lived in seclusion at the *Kuh-shan* Temple [谷山寺] of *Kung Shan* [公山] in modern An Hwei Province. The fourth apostle was *Tao-sin* [道信大師], whose real surname was *Sz-ma* [司馬]. He was reëmbodied in the person of *Hung-jén* [弘忍大師], a

native of *Huang-mei* [黃梅] in modern Hu Peh Province. Both of them were together at a temple on *P'o-tou Shan* [頗頭山] in A.D. 624. The *Wu-t'ang Hwei-g'uan* says that the bonze *Shên Siu* [神秀] associated with Confucian scholars in his youth, and picked up a great deal of knowledge: suddenly he became a priest and entered the *Tung-shan* [東山寺] temple, where he met the fifth apostle *Hung-jên*, and acknowledged with joy, that he had at last found a real master. Finally, the "History of the Priest *Shên-siu*" says that *Tao-siu* and *Hung-jên* went together to the *Tung-shan* monastery, and that their religion was called the *Tung-shan Fah-mên*; *Shên-siu* looked up to *Hung-jên*, who therefore thought very highly of him.

A literary effort [聖教序] of the *T'ang* Emperor *T'ai Tsung* [627-650] describes the celebrated traveller *Hsên Chwang* as a Leader of the *Fah-mên* [法門之領袖].

4.—DOES THE WORD *T'ien* BELONG TO NESTORIANISM ALONE?

The *Sui Shu* [7th century] says, in connection with the state of *K'ang* [康], (which has been abundantly proved to be identical with Samarcand):—"They have a body of Turkish law [胡律], which is placed in the Nestorian temple [祆祠]: and, when any punishment is to be awarded, they "take and decide it by this." In translating the remarks of the *Ming Shih*, written nearly a thousand years later, upon Samarcand [撒馬兒罕], Dr. BRETSCHNEIDER [*China Review*, Vol. V, Page 127] shows that, in the fourteenth century, there was still a hall there, in which the sacred book (then, of course, Moslem), was explained. And that this Nestorian body of law had found its way into China previous to the year A.D. 800 is evident from the remark made by the poet *P'i Jih-hia* [皮日休, *T'ang* dynasty] that there was a 胡律 in the *Wu-k'iu* Temple [武丘寺], somewhere in China.

That the Turkish races had Nestorian temples among them, previous to their conversion to Moslem, seems plain from the following extract from the *Yu-gang Tsh-tsu*, [百陽雜俎] a work of the eighth century: The Turks [突厥], in worshipping God [祆神], have no temples or shrines [祠廟]. They carve sandal into figures, which they put in skin bags, and, wherever they go, they smear them over with an unguent [脂蘇], sometimes lashing them on to a stake: and they sacrifice to them [祀之] at the four seasons.

The *Si K'i Tsung Yü* says:—"In the fifth year of *Chéng-kuan* [A.D. 631] imperial orders were given for the construction of a Nestorian temple [祆寺] in the *Chung-hua* division [崇化坊] of *Ch'ang-an*; and it was called the Syrian [大秦] or Persian [波斯] temple [寺]." Again: "The Emperor *Wu Tsung* [841-6] destroyed the Buddhist temples, and made the priests commoners. In A.D. 845 he ordered the Syrian Archimandrite and sixty others [大秦穆護大祆等] to revert to the lay status." *

* The last two extracts are taken from the *Si-k'i Tsung-Yü* [西谿叢語] a work which, according to WYLIE's *Notes on Chinese Literature*, was written by *Yao K'uan* [姚寬] in the 12th century, and partly or wholly republished during the *Ming* dynasty, in an encyclopaedic collection known as the *Pai Hai* [稗海].

An extract from the *Huei-chu Lüh* [揮塵錄], however, states that the *Si-k'i Tsung-yü* [西谿叢語] was compiled at *Yao K'uan's* direction by [some one whose personal name was] *Wei* 威, and that it was a very complete collection of notes on ancient and modern things.

This leaves us pretty much where we were, as WYLIE does not seem to mention the *Huei-chu Lüh* at all. But an extract from the *T'ung K'ao* [通考] informs us that the latter work was compiled by one *Wang Ming-t'ing* [王明清], son of *Wang Ch'ih* [王鈺] who, according to WYLIE, wrote in the 12th century.

It is clear therefore that the two authorities or the one, if both be identical, date from the twelfth century A.D.

5.—WERE ALL *P'o-sz* PRIESTS NESTORIANS?

An extract from the old *Trang Shu* says that, during the reign A.D. 806-821, the Uigurs successfully applied for leave to establish *Moui* [摩尼] temples in *Hsuan Fu* and *T'ai-yüan Fu*; and the *Kang Kien* gives the year A.D. 806 as the date of the first introduction of *Moui* sectarians, who are described as being Uigur subjects, but Buddhists and Taoists by religion [浮屠道人之稱]. Another extract from the *Sung Shih* says that, in the state of *Kao Ch'ang* [高昌, during the period 960-1127 the Uigur metropolis], there was a *Moui* temple where the Persian priests [波斯僧] held their separate rites: they were the so-called "heretics" [外道] of the Buddhist *Sātras*.

A work called the *T'ien-kuang Shu-chu* [天官書注, the date of which I cannot find], says that "the Great Unity [泰一] is the most worshipful God of Heaven," to which a commentator adds, [長水疏]: "the custom of all Western nations is to worship the Eternal God of Heaven [長命天神]."

The *Fah-yüan Ch'u-lin* [法苑珠林] says that there was a very learned polemical Brahman in the Lion state [Ceylon], champion of the *Hai-tan* [外道], who, hearing that *Kumārajīva* was preaching Buddhism in North-west China, [關中, and at the *Toba* court, 397-415], got on a camel with his books, and came to *Ch'ang-an*. The *Tsin Shu* says that *Kumārajīva's* mother had been with the King of *Kuche* [龜茲], and that she went with her son to India, and tried to dissuade him from preaching in China. Also that "his father was a clever and virtuous man, and had declined the "hereditary premiership, crossed the Orion Range, and come east." From these extracts it would seem that *Kumārajīva* was not a Hindoo, but a *Kuche* Turk.

6.—WHAT OTHER RELIGIONS, BESIDES NESTORIANISM AND PROBABLY ZOROASTERISM, FLOURISHED IN THE UIGUR AND NORTH-WEST CHINA REGION?

The Turkish races, and the Uigurs especially, seem to have been religiously inclined, and tolerant to all religion, for the *Sung Moh Ki-wên* [松漠紀聞, a 12th century history of the *Nachéus*], says:—The Uigurs are very devout Buddhists; when they worship, they wear the *Kachâga*, and use the Sanskrit or Hindoo tongue, [作西竺語]. The *Sung Shî* says of *Kiao Ch'ang*: There are over 50 Buddhist monasteries, all with door-slabs presented by the *T'ung* dynasty: in their monasteries they have several Chinese dictionaries and other works [唐韻, 玉篇經音, etc.].

The *Sî-hu Chi-yü* [西湖志餘, possibly the same as the *Sî-hu Chi-tsun* 纂 of WYLLIE, 18th century] says that "wax-fasting is a custom under which barbarian priests of the Western regions, during fast time, weigh their bodies and make a wax figure of like weight: when the fast is over, they again weigh themselves, and, if their bodies are heavier than the wax, they have been good: if lighter, then their efforts have failed."

The *Fah-yüan Chu-lin* [法苑珠林, 7th century] says:—The *Sûtras* [經] in the West are all written in characters derived from Sanskrit [祖梵], but some of the 36 states "use forms of it very different from others." The word for Sanskrit is loosely used, for we find *Pushpa*, the Tibetan preceptor of Kublai described in the *Yüan Shî* as a 梵僧, whilst the *Liao Shî*, or *Kitan* History, says that in A.D. 1001 a "Sanskrit priest" and distinguished physician was introduced to court by the Uigurs.

The *Mêng-ki Pih-t'un*, [夢溪筆談, a very good authority of the 11th century], says that in the *Yen-chou* [延州] hills

there is a Buddhist temple of the *Ts'in* state [秦國佛寺, probably referring to the Tibetan *Ts'in* dynasty of *Yao* 姚 (384-417), which succeeded the Tibetan *Ts'in* dynasty of *P'u* or *Fu*, 蒲 or 符 (351-395), both in North-west China, and also in relation with the Cashmir Buddhists], in the court of which is King *S'ien's* [尸毗] grave.

7.—IS THERE ANY EVIDENCE THAT ANY FOREIGN PRIESTS EVER WENT TO CANTON? WERE NOT THE "SEA-FOREIGNERS" PROBABLY MERK TRADERS, GOING THROUGH THEIR DAILY RELIGIOUS OBSERVANCES?

The *Yih T'ang Chi* [一統志, I suppose the *Yüan* dynasty edition,] says that south-east of *Shao Chou* [that is, somewhere on the Canton coast] there is a port called *Ts'ao K'ü* [曹溪], to which, during the *Liang* dynasty [A.D. 502-555], a Hindoo priest came in a merchant ship. This statement is confirmed by an extract from a stone tablet of the 8th century in praise of one *Ma Tsang's* [馬總] administration at *Ts'ao K'ü*, saying:—"The great barbarian ships from Annam, and the Western sea-going craft from India [身篤] all shared in his kindness." Another panegyric of the same date, on the same man, speaks of the valuable freights [寶舶] he induced. The *T'ang Shu* speaks of *Pulo Condor* ships [崑崙舶] at Canton in the Empress Hsü's time [684-704], and of an affray with the captain of one of them, in connection with some extortion, and says that, during the tenure of office of the 38th descendant of Confucius there, [A.D. 808], the mooring-dues exacted from barbarian ships were abolished. There had been great corruption after the reign 714-742. An undated inscription speaks of a sort of *Hoppo* at Canton called the 押番舶使. The poet *Tu Fu* [杜甫 812-870] sings of "thousands of Sea-Turk ships" [海胡舶], which probably refers to the

Arab traders. The *T'ung Shu* says that *Wei Ch'eng-kuo* [韋正貫], nephew of [the famous Tibetan frontier administrator] *Wei Kuo* [韋皋, 9th century], "was appointed "Imperial Commissioner at Canton [嶺南節度使]. The "maritime traders had hitherto been obliged to give the first "pick of their ivory, pearls, etc., to the great officers [大帥] "at nominal prices; but after his arrival there was no "such demand made, and his understrappers grumbled at "his integrity." Again:—"During the Emperor *King's* "reign [about A.D. 825] the maritime traders offered *garc* "wood and timber for building pavilions [亭材]." The *Wu Tai Shih* says that *Liu Chung* [劉鋹, Emperor of the Southern Han dynasty reigning at Canton, about A.D. 970], "was dallying with his palace girls and Persian [波斯] "women in the inner apartments, and left the government of "his state to the ministers." The *T'ung-kuoh Shih-pu* [唐國史補, doubtless of the *T'ang* dynasty] says that the Lion state's [Ceylon] ships were the largest that came to Canton [南海], and that, on their arrival filled with precious goods, the Governor at once reported the fact to the Emperor.

8.—IS THERE NOT EVIDENCE OF EARLY FOREIGN SEA-TRADE WITH FUH KIEN AND CH'EH KIANG PORTS AS WELL?

A. The *Peh Shih* [7th century] says that Loohoo is five days' sail from *Kien-an* [建安 modern Foochow]. The *Chung-hing Hwei-yao* [中興會要, Southern Sung] says that, during the reign 1131-1163, the Emperor was alive to the importance of encouraging barbarian ships by having an honest officer at Foochow.

B. The *Wu-kuoh Ku-shih* [五國故事, 10th century] says that one *Wang Yen-piu* was appointed to *T's'au-chou*, and used to successfully freight a barbarian ship every good year. The *Yüan Shih* [Mongol] mentions the appointment of

one *K'uei-k'uei* to watch the ships at *T'shan-chou* [泉舶]. See the late Mr. MAYERS' remarks on page 185 of Vol. IV. of the *China Review*. The same work says that junks from *T'shan-nan* [泉南] pass *Ciampta* on their way to Java. The *Wên-hien Tung-k'ao* says the largest ships that came to China were of one thousand *boran* [婆蘭] capacity, with only one mast; each *boran* was 300 pounds [400 lbs. *av.*] *Boran* is evidently a foreign word, but it does not appear to what port these large ships came.

C. The *I-yüan* [異苑, *quarre date*,] says: During the reign 826-837, during the building of a granary at *Shau-jin* [opposite Hangchow] two large boats were dug up, and in them were found coins with characters on the rim. *On-gang Sün* [歐陽修 11th century] says: "Hangchow, [錢塘] ever since the Five Dynasties [10th century], has had the good sense to "obey China [proper], to respectfully ask commands, and to "cease warring. The people are now rich and happy, and the "town is splendidly built, having a population of over 100,000 "families, and being shut in between the lake and the mountains. "Fuh Kien traders and all sorts of sea-going ships crowd the "harbour." The *Wu-tai Shih* says that "T'ien Lin of Wu-Yüeh, [吳越錢鏐, independently ruling at Hangchow A.D. 900], "frequently sent envoys across the sea, and all the sea-ports "did a large trade with his people." The "good sense" evidently alludes to the period subsequent to his reign.

D. The *Ming Yih-tung Ch'i* [明一統志] says that *Chap'u* [乍浦 near Hangchow] is in the *Ping-hu* district [平湖], and that, during the *Yüan* [Mongol] time, foreign ships congregated there. The same work says that "Cau-fu [澈浦] "was in the *Hai-geu* district of *Ka-hing Fu*; and that, during "the reign of Kublai Khan, it was a great resort for traders, "for which reason the *Ming* dynasty built a wall round the "harbour, and gave to the place the name of *Kau-p'u* Mart." The city of *Hai-geu* was near the old Salt Town [鹽官鎮]

which had been two centuries earlier submerged by the inroads of the sea. The *Shên Pao* reported that valuable porcelains were dug up here in 1887 when part of the old town was exposed to view.

The result of the above quotations, all of which are taken from the *Pei-wén Yin-fu*, seems to me to be as follows :—

1. There is no evidence that any Nestorians ever were at Canton, or that any Persian Christians ever were there.

2. Nor that Canton was *Canjü*, or that *Canjü* was any other place than *Kan-p'u*.

3. There is plenty of evidence that both Persians and Arabs went to Canton; and it seems likely that they were also among the foreigners who plainly went in ships to Fuh Kien and Ch'eh Kiang ports.

4. The term *Ta-t'eh Sêng* was undoubtedly applied to Nestorians, and to their religion the *king kiao* [景教]; but the term *Ta-t'eh Sêng* was also applied to the *Fah-mên* priests, and to priests from India.

5. If all the *Fah-mên* were not Buddhists, at least some of them were. It is certain that some *Fah-mên* were Buddhist sectaries of some sort, and there is nothing to shew that all were not.

6. The *Wai-tao* were not orthodox Buddhists, and there is nothing to shew that any of them were Buddhists at all. Some of them were *Po-sz* and *Mou* priests.

7. *Ta Ts'in* is not only identical with *Fah-lin* in the sense of "Syrin," but, in connection with ecclesiastical matters only, it is interchanged also with *Po-sz*. It seems not unlikely that *Po-sz* and *Persian* both mean "Parsee" in many cases, both in China and in the West.

8. The word *P'ien* [半天, or Heaven as a spiritual abstraction] cannot be shewn to have been applied exclusively to Nestorians.

9. *Po-sz* priests were in some cases identical with *Mou* priests ; in others with Syrian Nestorians.

10. The Arabs traded all along the China coast as far as they found ports.



THE "TENT THEORY" OF CHINESE ARCHITECTURE.

BY S. RITTER VON FRIES.

When reading the proceedings of the meeting of the Royal Asiatic Society on the 21st February, as published in the *North-China Herald*, I noticed that Mr. CHARLES, one of the members present, in commenting on Dr. EDKINS' paper on "Chinese Architecture," expressed his surprise that the learned author had made slight reference to the Tent Theory, and even doubted whether it was a tenable hypothesis that the curved roofs of Chinese buildings had developed out of and were a remnant of ancient tent-habitations.

In regard to the theory, I venture—though a layman in matters of architecture—to express my view, hoping to elicit in this way information from some of the learned members of our Society who have entered into this question, and arrived perhaps already at a definite result, either supporting or upsetting my argument.

My conviction is, and I hope to be able to prove it, that Dr. EDKINS was perfectly correct in abandoning a hypothesis which cannot be upheld substantially. The few "proofs" which Mr. CHARLES brings forward, I find, are as little an obstacle to discarding the tent theory as they are a support of the same.

If we are to assume that the shape of the tent was so familiar to the Chinese that they continued to preserve the same even in their structures of masonry, we must in the first place be able to show that the dwellings of the natives ever consisted of tents. In which period of the history of



this people, wonderfully complete as it is, do we find a hint of their having lived in tents? If we go so far back as to the mythical sovereigns Yu Ch'ao (有巢) and Huang Ti (黃帝), we read that they taught the people to build houses and cities. Of course this is myth; but would even myth abstain from mentioning the existence of tents altogether, if they had been the first and usual form of their quarters at any time? The Chinese fully realise the fact that a nation in its childhood is uncivilised, and they are not ashamed to relate that their ancestors "ate hairs and drank blood," before some one of the Sui-jên family (舜人民) discovered fire. Why, then, should they ignore the tents, which they would doubtless have kept longer than that strange food and beverage, especially if we find it reasonably assumable that this form of dwelling had any influence on their architecture. I have nowhere come across a passage yet which would show that the Chinese were formerly in the habit of making use of these portable structures as constant habitations. In the absence of such a passage, I must also put the question: were the Chinese ever a nomadic tribe, so as to require tents, or so as to be in circumstances to find them useful? As far as I am aware, the Chinese neither consider themselves, nor are they by Western historians described, as nomads. We have every reason to believe that they were as early as possible a settled people, and essentially agriculturists, (note Shên-nung, the divine husbandman) a mode of life which in itself excludes migration. In the face of these facts, we should, I should say, require very strong proofs to believe that the Chinese were, instead of cave and hut dwellers, at any time dwellers in tents. That tents have been employed by them on their numerous warlike expeditions, even in remote antiquity, I am quite willing to concede, as they could have learned their usefulness in such cases from their northern nomadic neighbours.

The next point in favour of my argument is etymological. Do any of the characters, or part of them, which bear the signification of house, dwelling, home, etc., have the slightest reference to a tent-like structure? Do not the radicals 宀 (*mien*) and 門 (*lu*) unmistakably point to both a cave and a dwelling with doors, indicating surely that a tent cannot be meant? Finally, the expression *chang-fang*, meaning a tent, is a *compositum*, and therefore naturally also of more recent invention.

If it is not possible to adduce proofs in either history or language in support of the tent theory, by what circumstances then, I may be allowed to ask, are we forced to assume, in spite of this significant silence, that the shape of the tent is the cause of the characteristic form and arrangement of Chinese buildings? The singularly curved roof, I am told, is such a *prima facie* proof. I venture not only to disbelieve that the usual Chinese roof has derived its shape from the tent, but to go farther, maintaining that such a curve has scarcely anything in it parallel to a tent at all. The outlines of the latter are necessarily straight, and it is the space between the framework, covered with cloth, skins, and the like material, which would bend and show a curve, and this again principally with tents having a triangular profile, which are the sort least likely to have been used. The *yurt* which the Tartars, Kirghese, and Kalmuks construct is round and often hemispherical, and bears no resemblance whatever to the Chinese house. The surface of the roof of native houses is not bent, but the masonry or beams at both its ends, also sometimes the ridge of the house, show the typical curve. The roof surface, on the contrary, is perfectly even and bears, especially in the South, obvious traces of split bamboo roofing alternately showing the concave and convex, the convex parts swelling upwards like ribs, which form it has been found useful to follow even in tile roofs. It is therefore

evident to me that the Chinese house of the present age originated from caves and huts, and the apparently puzzling flourish of corners and ridge of the roof of buildings can, if it must be derived, just as well have been caused by the uneven forms of the rude material used to build the primeval hut. I am, however, more of the opinion that this peculiarly shaped line was no inheritance of days of yore, but is an artistic embellishment given to the gradually more improved houses and temples. That wooden buildings apparently induce the constructor to add projections to the roof and increase its ornamentation I find illustrated in the primitive houses of peasants in some parts of the Austrian Alps, where the wide outstretched rafters at the corners are very often decorated with fantastic carvings, and those on the long side of the roof are bent upwards, and are utilised at the same time to support the eaves. Most of the Chinese ornamentation, which Dr. EDKINS rightly asserts ought to be considered Buddhist, is incongruent with that indigenous fondness for the rectangle which is exhibited in their architecture, furniture and dress, and I can therefore not suppress my doubt whether the characteristically curved roof is originally Chinese. There is, I am perfectly aware, neither in India nor anywhere else an exact parallel to it to be found, which we might consider the original of that form, and I consequently express my doubts with reservation. The archaeological remains of Egypt, the country which seemingly had the same propensity for a geometrical arrangement as China, show uniformity in every branch of the plastic arts, because they are all equally Egyptian.

In concluding, I solicit a renewed attention on the part of the learned members of the Society to this interesting question.

NOTE ON THE COMPARATIVE LONGEVITY OF MALES AND FEMALES IN JAPAN.

BY T. E. HALLIFAX.

The appended list, taken from the census report published in March 1890, may be of some little interest, as showing the greater longevity of females over that of males in Japan, and the impunity with which the Japanese inhale both tobacco and charcoal fumes. It is the universal custom in Japanese houses during autumn, winter and spring to warm the rooms with charcoal fires. These of themselves would not prove very harmful, as the houses are so badly constructed as to admit draughts from all sides, and thereby render the fumes comparatively innocuous; but the people, both men and women, have a habit of sitting close to the fire with their heads leaning over, so as to inhale fumes to such an extent as would speedily knock over a European. Again, both sexes are inveterate smokers, and inhale all the tobacco smoke. Of course many people of Europe inhale tobacco smoke, but they do not inhale charcoal fumes also; and it is rather matter for surprise that any Japanese reach a hundred, seeing that a great part of their lives they are inhaling poisonous matter, thereby diminishing in the same proportion the necessary supply of oxygen. Among my own acquaintance are several old women, nearer eighty than seventy, who are inveterate smokers, and who, during three-fourths

of the year, crouch over the charcoal fire, yet who are still remarkably healthy and active.

AGE.

70	...	male and female, 983,856	
80	...	do.	do. 199,074
90	...	do.	do. 7,507
101	...	males 9, females 21	
102	...	„ <i>nil</i>	„ 9
103	...	„ 1	„ 2
104	...	„ 4	„ 18
105	...	„ 3	„ 6
106	...	„ 1	„ 1
107	...	„ <i>nil</i>	„ 1



PROCEEDINGS.

*MINUTES of a GENERAL MEETING held in the Society's Library,
Museum Road, Shanghai, on Friday, 21st February 1890, at 9 p.m.*

Mr. P. J. HUGHES (President) occupied the chair. There were about 30 persons present.

The Hon. SECRETARY (Mr. W. Bright), in opening the proceedings, said that as the business of the last meeting of the Society, held on the 20th December, had been fully reported in the daily newspapers, he thought that, with the permission of those present, the minutes might be taken as read. At the last meeting the President had mentioned that the abstract of the replies to the Weights, Measures, and Currency circular was in course of preparation by Mr. Morse. It was now his duty to report to the meeting that the abstract had been received, and would form a valuable addition to the current fascicle of the Society's Journal, which was shortly to be published. The thanks of the Society were due to their correspondents for their replies, and especially to Mr. Morse for the great pains he had bestowed on the preparation of the summary. The Circular for 1890 on "Inland Communications" had just been issued, and would, he hoped, elicit even more numerous and exhaustive replies than resulted from the issue of the last Circular. The information sought on the present occasion to be obtained from all parts of China and Corea had reference to the main roads, the condition of the ancient and modern roads, particulars of noteworthy bridges, viaducts and tunnels, of modes of conveyance, rate and cost of travelling, cost of carriage of goods, and accommodation for travellers. He might add, in conclusion, that, owing to the difficulty experienced in some cases of obtaining subscriptions from members, the Council had decided to remove from the list the names of those

who had failed to pay their subscriptions for the past three years, and to print in the next fascicule of the *Journal* a notice to the effect that members whose subscriptions were a year in arrear would receive no further publications of the Society.

The PRESIDENT said that he had much pleasure in announcing the election, since the last meeting of the Society, of the following gentlemen : MESSRS. MAX GOEBEL (Consul-General for Belgium), F. M. GRATTON and FERD. RINKEL. In the name of the Society, he desired to thank M. Janet for his kindness in arranging and classifying the specimens of butterflies in the Museum. He had been requested to intimate to members that they would greatly assist their indefatigable Hon. Librarian (Dr. Faber), in his arduous labour of re-arranging the books in the Library, if they would kindly return without delay any works which might happen to be in their possession. There were at present some forty books missing ; the absence of such was, to say the least, exceedingly inconvenient. The lecture on "Chinese Architecture," which they were to have the pleasure of hearing from Dr. Edkins that evening, would, he was informed, treat the subject from the historical point of view. The well-known learning and ability of the lecturer entitled them to expect a lecture of more than ordinary interest, and he was glad to see many present, though doubtless there would have been a much larger audience had not the weather been so severe. Among those present he noticed some who had travelled extensively in the interior, and who had doubtless come across remains of ancient edifices and seen the cave and rock dwellings described by Dr. Williamson in his interesting work, *Journeys in North China*. There were other gentlemen—and perhaps ladies, too—who, although they had not gone so far afield, had closely observed the facts within their reach, and who might possibly favour the meeting with the results of their observations. Last, and perhaps not least, there were present professional gentlemen able, as he hoped they would be willing, to tell them something about Chinese architecture regarded from the standpoint of Western science. He had no doubt that thus many novel and interesting facts would be elicited, and a flood of light thrown upon a subject which, as far as he knew, had not hitherto been discussed at a meeting of the Society.

Dr. J. EDKINS then read extracts from his paper on "Chinese Architecture," which is printed *in extenso* pp. 253 *seq.* of this volume.

In the discussion which followed,

General MESSY thought that the different interpretations of scholars in regard to the caves and kilns arose from the use of the same character to express both, as was the case in Shansi and Kansu, though in Szechuan the caves were known by a distinct name. The loess referred to by the lecturer resembled chalk, was easily worked, and was used for making cabins, beds, stoves, etc. The ornaments which he had noticed round the graves of Emperors were usually in pairs; there were two torches, two goats, two horses, two men, and so on. The graves had large tablets, with inscriptions similar to those on tombstones in Western countries. The cap (or *mao-tzu*) at the top of the tablets had designs of dragons holding balls—presumably of fire. There were caves of the Tang dynasty ten or so miles west of Honan-fu executed out of solid rock, and many of them very large. Excepting the porcelain pagoda at Nanking, the pagodas he had seen were mostly of brick.

Dr. FABER said that he had followed with much interest the valuable paper of Dr. EDKINS, and only regretted that he found it impossible to remember the great number of minor details. He wished to ask the lecturer a question, namely, "What was the characteristic feature of Chinese architecture?"—in the sense that we speak of parallel lines forming the characteristic of Greek architecture, of the vertical line with pointed arch of Gothic, and of the round arch of the Roman style.

Dr. EDKINS replied that he considered the roof the characteristic feature of Chinese architecture.

Dr. FABER, continuing, said that the roof was certainly very characteristic of Chinese architecture. Architecture, however, was not merely workmanship, but a science and an art. The roof could not be considered as an object in itself, but only in connexion with the building to which it belonged, and of which, as an organic whole, it must be a part. Herein Chinese architecture was deficient. The ground plan was sometimes well proportioned, but the leading from it to the superficial roof was seldom perfect, except, perhaps, in small

open garden-houses, in which the Chinese excel. Though the roof was not exclusively supported by walls, but by pillars also, the pillars in themselves showed no artistic perfection. They had commonly a pedestal, of which there were various forms in China, but no capital. Only very rarely was a rough beginning of such to be seen in China. The upper portion of the pillar was pierced by cross-pieces, commonly of wood. This piercing pointed to wood-construction as another feature of Chinese architecture. For this reason no vaults were to be met with, the very few exceptions, on the Omei Mountain and in graves, pointing to foreign workmanship. Dr. Edkins had mentioned a building entirely of stone; it would be interesting to get more particulars about such. Then with regard to the Ming-t'ang, they had been told that it was a square building with a round roof. To accomplish that in an artistic way, to the satisfaction of cultivated, æsthetic ideas, meant the highest perfection in architecture. It would mean an anticipation of Michael Angelo and Wren, 3,000 years ago. But we might as well believe in the squaring of the circle by the Chinese. Probably a round roof was simply put on a square one. That the Ming-t'ang, at the Tai Mountain, was more magnificent than other buildings of the kind was due to the near relationship of the Duke of Lu, commonly called Chow Kung, to the Imperial house of the Chow, and to his great merits in establishing that dynasty in China. He was invested with the feudal State of Lu, and special privileges were granted to him. Some of these referred to the Ming-t'ang. This was a large building for ancestral worship, for audiences, and for the reception of the Emperor on his tours of inspection. There were four other buildings of the kind in China at the time, the principal one being at the Imperial residence. In the *Li-ki* they were told that the Emperors of the Shang and Hsia dynasties had similar buildings under other names. Though that kind of building served for religious as well as for political purposes, it did not follow that all ancient Chinese buildings were devoted to religious observances. There were very early notices in Chinese literature of markets, of walled cities, of granaries and other store-houses, of stables, towers, etc. All such buildings were doubtless very prosaic in outline, only serving for the immediate necessities of life. The designs of all

larger buildings in China exhibit an immense waste of space : the principal impression was received from the vast dimensions, which, according to Burke, are always the sign of a common and low imagination. Of more or less beauty, however, were the gates and gateways, and, as a branch of them, the memorial arches. Their ornamentation was often beautiful. But even in their ornamentation the Chinese rarely, if ever, exhibited congruity of detail. The details were often perfect, but they were seldom in such full harmony with other details as to present to the spectator the pleasing aspect of a harmonious work of art. The distinction of a classical and post-classical period in Chinese architecture was scarcely tenable, and certainly of but little importance. Very marked, however, was the Buddhistic period. No mention had been made of the influence of Mohammedan architecture in China. There was undoubtedly such from Arabia (for example, in Canton), from Persia, and from Turkestan. It was possible that the superiority of the architecture of the Ming dynasty could be traced to that source.

Dr. WILLIAMSON said there were comparatively few allusions to the buildings of the Chinese in ancient books, and it would be easier to describe their dresses than their dwellings. The few which existed had been utilised by Dr. EDKINS. There was no doubt that the lecturer was right in saying that the first end was geometrical, and this was also true of contemporaneous architecture. The early Babylonian and Assyrian architecture was emphatically geometrical — usually rectangular — crowned often with a dome or an octagon ; so also with the earliest Egyptian. The Great Pyramid was a geometrical problem from base to apex. And in regard to these the lecturer was also right in saying that science preceded superstition. Those two styles of architecture seemed to have had no beginning, but to have sprung up in their richest glory like Minerva full grown and armed from the brain of Jupiter. This was true likewise of the most ancient Egyptian statues, alike as regards size, expression, and finish. In regard to the second stage, the speaker thought it was very likely that T'sin Shi Huang had obtained his ideas of parks and gardens and other of his public works from the royal palaces of Babylonia, which appeared so unexpectedly

in China, as with the touch of a magician's wand. Ts'in Shi Hnaung lived in the distant north-west, and there could be no doubt that there was far more intercourse in those times between Central Asia and Asia Minor than was once supposed.

Mr. HUGHES (the President) suggested that the resemblance between the Chinese house and the Mongol tent might account for the style of Chinese buildings. He had not heard that subject referred to in the course of the discussion, and perhaps there were some present who could enlighten them with regard to it.

Dr. EDKINS stated that he knew that that was a favourite theory, but he had not much faith in it.

General MESSY having made a brief reference to the resemblance between the portable canopy used at military reviews, to shelter the inspecting officer, and the concave roofs met with in China,

Mr. CARLES said that he was rather surprised to hear the learned lecturer call in question the origin of Chinese architecture. It was not only the outer slope of the roof in a Chinese house which bore a resemblance to a tent; there were many other features in common. In building it, the wooden framework was first placed in position, after which the brickwork was filled in, the sequence of work being the same as that with a tent's pole and its covering. Further, the rafters overlapped the pillars to a degree which, though natural in a tent, was certainly not necessary in a more stable structure. There was also a complete absence of any arch; but perhaps the most striking resemblance between a Chinese house and a tent lay in the divisions corresponding to the spaces between the poles or pillars, which necessarily, with the exception of the central space, were equidistant from each other. Nor, again, was it only in the interior of the house that the resemblance existed. The main building was slightly raised above the others, and was approached by a pathway flanked by the buildings of secondary importance. The women's quarters were at the back of the main building and thus screened from sight. No communication existed between the different buildings, and if it was desired to pass from one courtyard to another, the passage lay outside the intervening buildings, and not through them. All these conditions were such as would exist in a camp, the chief's

tent being on a slightly higher ground than the rest, the approach to it being guarded by his officers' tents, and the communications from one to another being not under cover, but in the open air. There was another curious feature to which it was perhaps worth while to call attention in passing. The stone socket (*sung-tun*) in which the main pillars stand is cut away on its lower side to such an extent that only a comparatively small portion of it rests on the stone slab beneath it. This, of course, is a weak point in the structure, but may be due to the fact that formerly the socket rested in the earth and not on a stone slab, when, of course, it would be advisable to reduce the size of the lower portion in order to admit of its easier reception into the earth. This, too, might point to the time when a substitute was sought for tent-pegs in the erection of solid buildings. There were other buildings than those of the type which had been referred to. For instance, at Soochow the Wu-liang Tien or Beamless Hall, and at Peking the Drum Tower, were specimens of structures in brick and stone, the like of which were found on a smaller scale at the cemeteries of persons connected with the Imperial family. In view, however, of the resemblances which existed, in appearance, interior arrangements, and general plan, he held that the original idea of a Chinese house was drawn from tents and tent life.

Dr. FABER said that in regard to the design of Chinese Yaméus and similar buildings, he thought that Mr. Carles' arguments were quite conclusive. He also agreed with General Mesny that the concave roof was an imitation of the lines of a tent or portable pavilion. Curved roofs were, according to all Chinese authorities, as ancient as Chinese architecture. They might believe that, as it marked a peculiarity of Chinese artistic feeling, which showed unmistakably a horror of straight lines, especially horizontal ones. The forms on the wall-pictures exhibited before them that evening were no valid argument against it, for they knew that Ts'ün Shi Huang showed a great interest in going against every custom prevailing during the Chow dynasty, which was then crushed, and a new era in social and political life, not merely a new dynasty, was inaugurated with irresistible power and relentless cruelty. A few ancient relics at one place in China could never be conclusive in

regard to the state of things at other places, and, still less at other periods.

Mr. G. J. MORISON stated the usual points in architecture were construction, outline, and ornamentation, and as regards construction in Chinese buildings his experience led him to the conclusion that its principal feature was its utter badness. There was hardly a building erected so as to last. In pagodas bricks were used, and such structures lasted longer than most others. Wood formed the chief part of the majority of the buildings. The outline was the point to which Western architects liked to pay most attention. In Chinese buildings, except perhaps as regards the roof, and except in the case of pagodas, there was very little outline. The outline of the semi-circular bridges was pleasing to the eye, and had greater attention been paid to the foundations, they would probably have remained to the present day. The pleasantest feature of most Chinese buildings, and on which the greatest care was evidently bestowed, was the ornamentation. In this real merit could be discerned, and the work was well worthy of the study of those interested in such subjects.

Dr. FABER proposed a vote of thanks to the lecturer for his very interesting lecture, and a similar compliment having been paid to the Chairman, the meeting adjourned.

*MINUTES of the ANNUAL GENERAL MEETING held at the Society's
Library on Monday, 19th May 1890, at 9 p.m.*

Mr. P. J. HUGHES (President) in the chair. Between 30 and 40 persons were present, including ladies.

The SECRETARY read the Reports and Accounts for the year 1889-90.

The CHAIRMAN observed that the accounts showed a balance of £ls. 530, and £ls. 70 had since been collected. The Reports showed that satisfactory progress had been made during the past session. The Museum had not been so much favoured as usual, and it was hoped that sportsmen would bear this institution in mind. After

expressing a hope that the incoming Council would accelerate the work of printing the papers accepted by the Society, the Chairman said he hoped members would enable them to still further increase the attractiveness of their Journal by reviving the "Notes and Queries" which used to form an interesting item in the Transactions. Accounts of journeys in the interior would be acceptable, especially if read by the traveller himself. In this connexion he would remark that gentlemen who might happen to visit Si-an-fu in Shensi would confer a favour by reporting, as suggested by his Excellency Mr. von Brandt, on the efficiency of the measures taken for the protection and preservation of the Nestorian Tablet. It would be remembered that, at the instance of some missionary friends, the Council had a letter written to Mr. von Brandt on the subject, and that His Excellency and his colleagues had induced the members of the Tsung-li Yamén to interest themselves in the matter and to instruct the local authorities to take the necessary steps for the preservation of this monument of the early relations between China and the West. The meeting would be glad to learn that Dr. Bretschneider had promised a paper on the "Botany of the Chinese Classics," being the second part of his *Botanicon Sinicum*, published by the Society ten years ago.

On the motion of Mr. P. G. VON MÖLLENDORFF, seconded by Dr. JAMIESON, the Report and Accounts were adopted.

On the motion of Mr. M. F. A. FRASER, seconded by Mr. MENCARINI, the following gentlemen were elected to constitute the Council for the ensuing year:—Mr. P. J. HUGHES, *President*; Dr. EDKINS and Mr. VON MÖLLENDORFF, *Vice-Presidents*; Mr. W. BRIGHT, *Hon. Secretary*; Mr. THOS. BROWN, *Hon. Treasurer*; Dr. FABER, *Hon. Librarian*; Mr. CARL BOCK, *Hon. Curator of the Museum*; Dr. JAMIESON, Rev. A. WILLIAMSON, LL.D., and Messrs. VON HAAS, PLAYFAIR and D. C. JANSEN, *Councillors*.

The CHAIRMAN observed that several of the retiring Council had deserved particularly well of the Society during the past year, among them being Dr. Faber, Dr. Jamieson, Mr. Bright and Mr. Bock.

Dr. JAMIESON then proceeded to read a paper by Mr. E. H. Parker styled "Notes on the Nestorians in China." (*This paper is printed at pp. 289 sqq. of this volume.*)

Dr. EDKINS said he disagreed with the author of the paper in the conclusion he arrived at. There was a regular trade carried on by the Arabs between Bussorah and Canton, and the Nestorian Christians, having to come to China and coming from the same part of Asia as the Arabs, would naturally come by the same route. The author had been unwise in confining his attention to one book, which was a very unsafe thing to do in reading Chinese history.

Mr. W. BRIGHT then read a paper by S. Ritter von Fries, on "The 'Tent Theory' of Chinese Architecture." (*This paper is printed at pp. 303 sqq. of this volume.*)

Dr. FANEY thought the writer of the paper rather missed the point of Mr. Carles' argument. Mr. Carles did not mean to express the idea that the curved roof was derived from tents like those of the Mongols, or that the ancient Chinese must have lived in such tents. On the contrary, Mr. Carles pointed to several yaméns and other existing buildings as having derived their shape from structures in an encampment. Dr. Edkins, on the other hand, based his argument on some tablets which had been discovered in a certain place in China as indicating that in ancient China the curved roof was not known. They had learned, from Mr. Parker's paper just read, that it was not wise to confine oneself to one book; and it would not be wise to confine oneself, as he considered Dr. Edkins had done in his lecture on "Chinese Architecture," to one monument, especially one belonging to a dynasty in which all the ancient customs of China were set upside down. The shape of the roof was shown in a line fastened above and below but not stretched tight.

Dr. EDKINS thought the imitation of a tent was probably imported into China from other nations.

General MESSEY thought some reason for the use of the curve in Chinese buildings might be found in the former use of bamboos with projecting ends.

Dr. WHITNEY said that from ideas gathered from the natives themselves it was probable that the whole thing arose from superstition. The Chinese never make a road straight for any considerable distance. Every here and there a crook is made, the idea being that any evil influence travelling along the road will be

dissipated at the bend. The same idea had probably been applied to the roofs of houses.

The proceedings terminated with a vote of thanks to the Chairman.

COUNCIL'S REPORT FOR THE YEAR 1889-90.

The Council of the China Branch of the Royal Asiatic Society beg to present their Report on the operations of the Society during the year ended 30th April 1890.

1. *Council*.—The office-bearers and members of Council elected at the Annual General Meeting held, under the presidency of Dr. R. A. JAMIESON, on the 28th May 1889, were as follows :—

P. J. HUGHES, M.A.,	<i>President.</i>
W. R. CARLES, Esq.,	} <i>Vice-Presidents.</i>
P. G. VON MÖLLENDORFF, Esq.,	
WILLIAM BRIGHT, Esq.,	<i>Hon. Secretary.</i>
REV. ERNST FAHER, DR. THEOL.,	<i>Hon. Librarian.</i>
CARL BOCK, Esq.,	<i>Hon. Curator of Museum.</i>
R. M. CAMPBELL, Esq.,	<i>Hon. Treasurer</i>
JOSEPH EDKINS, D.D.,	} <i>Councillors.</i>
W. S. EMENS, Esq.,	
J. H. FOCKE, DR. JUR.,	
R. A. JAMIESON, M.A.,	
Ven. Archdeacon MOULE, R.D.,	

Of these, Messrs. W. R. CARLES and R. M. CAMPBELL, Dr. J. H. FOCKE, and the Ven. Archdeacon MOULE resigned towards the end of their tenure of office, the first-named owing to his transfer to another port, and the others owing to their departure for Europe.

2. *Members*.—The number of members on the roll at the end of the period now reported on comprised 8 Honorary, 24 Corresponding, and 218 Ordinary Members (including in the last-mentioned category 7 Life Members). The total number of members has decreased somewhat, owing to a recent decision of the Council regarding the erasure from the list of members of the names of those whose subscriptions were much in arrear: the decrease, however, is to a certain extent more apparent than real, as many persons who on leaving China wished to resign their membership neglected to inform the Society of their intention. It is with much regret that the Council have to report the decease during 1889 of two prominent and learned Orientalists, Prof. W. Schott and Colonel Henry Yule, C.B., both of whom were Honorary Members of the Society.

3. *Meetings*.—At the meetings held since the date of the last Council's Report papers on the following subjects were read:—

"Government by Women in Eastern Asia," by D. J. Macgowan, Esq., M.D.

"Prehistoric China revealed by the Chinese Written Characters," by Dr. Ernst Faber.

"Chinese Architecture," by Dr. J. Edkins.

The reading of these papers was followed by interesting discussions, notes of which will be found in the minutes of the meetings. In addition, the following papers have been accepted, and will be read at the Annual General Meeting:—

"Notes on the Nestorians in China," by E. H. Parker, Esq.

"The 'Tent Theory' of Chinese Architecture," by S. Ritter von Fries.

4. *Journal*.—Such of the papers mentioned above as have been accepted for publication will appear in the current volume, as also a valuable "Essay on Manchū Literature," by Mr. P. G. von Mölleudorff, and an abstract, prepared by Mr. H. B. Morse, of the replies to the Society's Circular on the "Weights, Measures, and Currency of China." Incomplete as the information contained in this abstract may be, it has been thought well to publish it, and at the same time to solicit further particulars from those in a position to furnish them, so as to allow of the information being amplified at an early date.

In the current volume will also be found the correspondence between the President of the Society and the Doyen of the Diplomatic Body at Peking concerning the preservation of the Nestorian Tablet and other ancient monuments at Si-an-fu; and the Council would here beg to tender their thanks to the members of the Diplomatic Corps for the interest they have evinced in the subject, and to the Chinese High Authorities for their ready willingness to undertake the necessary measures for the protection of these historical treasures.

5. *Officers' Reports.*—Appended are the Treasurer's, Curator's and Librarian's Reports. From the Treasurer's Report it will be seen that the Society's financial position is exceptionally satisfactory. The balance standing to credit in the Society's Account is Tls. 532.81, being an increase over that of 1888 of Tls. 379.23; while the Museum Account shows a credit balance of Tls. 120.64. An increase has to be noted in the sale of the Society's Journals, thus affording satisfactory evidence of the growing appreciation in which the early as well as the more recent publications of the Society are held both in China and abroad. The Treasurer reports that repeated applications to many members have failed to secure the payment of their annual subscriptions. Some of the \$615 stated in his Report as outstanding under this head has since been paid in, but a considerable sum still remains to be collected. Judging that members who have not responded to the Treasurer's applications do not desire to have their names borne on the Society's roll of members, the Council, in January last, decided to remove from the list the names of those who have failed to pay their subscriptions for the past three years, and henceforth members whose subscriptions are one year in arrear will receive no further publications of the Society, while, as a reminder, the names of such members as have not been heard from for two years will in the published list be printed in italics.

The Curator's Report gives a list of the specimens presented during the year. While thanking those who in their up-country trips, in whatever province they may be, think of the needs of the Museum, the Council cannot but regret that the collection is still below the standard, as regards variety, that they and all students of

natnral history desire to see it reach. The Council have to thank M. Janet for his valuable services in arranging and classifying the collection of butterflies in the Museum.

The Librarian reports favourably of the work in connexion with the Library, and the thanks of the Council are due to Dr. E. Faber for his untiring zeal and devotion to its interests. Much solid work has been done, and a great advance has been made towards arranging in convenient order, binding, numbering, and cataloguing the works in the Library, and in utilising to the utmost extent the limited accommodation the room affords.

WM. BRIGHT,

Hon. Secretary.

30th April 1890.

Appendix I.—HON. TREASURER'S REPORT.

The balance at credit of the Society on 31st December 1888 was Tls. 153.58; the balance at credit on 31st December 1889 was Tls. 532.81. As may be seen from the accounts, the increase is owing to a large number of subscriptions that were in arrear having been collected during the past twelve months. It is greatly to be regretted that subscriptions, part due, are still outstanding to the extent of \$615, viz. :—

For the year 1883—	\$ 5
“ “ 1884—	\$ 5
“ “ 1885—	\$ 5
“ “ 1886—	\$ 15
“ “ 1887—	\$ 55
“ “ 1888—	\$255
“ “ 1889—	\$275
	\$615

All members whose subscriptions are in arrear have been written to and notified of the fact. No doubt some of the letters have not reached their destination, but in many cases this cannot be supposed to be the case. There is a considerable increase in the amount received by sale of the Society's publications, over the amount shown in last year's accounts. Some of the receipts shown in this year's accounts, however, should have been included in the 1888 accounts, but, as stated in the Treasurer's report last year, as the amount was not considerable it was allowed to stand over.

Museum.—The usual grants have been received from the English and French Municipal Councils. The balance in hand on 31st December 1889 was only Tls. 120.64, against Tls. 178.41 at the end of the previous year; against which, however, it may be noted that the interest due on the loan from the Recreation Fund (Tls. 75) was not paid in 1888, whereas this year has borne the charge for that as well as the current year.

R. M. CAMPBELL,
Hon. Treasurer.

Shanghai, 1st January 1890.

THE HON. TREASURER IN ACCOUNT WITH THE SHANGHAI MUSEUM FOR THE YEAR
ENDED 31st DECEMBER 1889.

INCOME.		EXPENDITURE.	
<i>Tls.</i>	<i>etc.</i>	<i>Tls.</i>	<i>etc.</i>
To Balance from 1888	178 41	By Wages of Taxidermist and Coolie	324 38
" Grant by Municipal Council	500 00	" Municipal Council Taxes	12 67
" " French Municipal Council	100 00	" Fire Insurance	10 63
" Interest on Bank Account	3 26	" Repairs to premises	13 35
		" Rent of Rooms paid to Shanghai Library	150 00
		" Two years' interest on Loan from Recreation Fund	150 00
		" Balance at credit	120 64
<i>Tls.</i>	<i>781 67</i>	<i>Tls.</i>	<i>781 67</i>

F. & O. F.

SHANGHAI, 1890.

Compared with vouchers and found correct,

THOMAS BROWN,

A. L. ROBERTSON,

R. M. CAMPBELL,
Hon. Treasurer.

THE HON. TREASURER IN ACCOUNT WITH THE CHINA BRANCH OF THE ROYAL ASIATIC SOCIETY
FOR THE YEAR ENDED 31ST DECEMBER 1889.

INCOME.		EXPENDITURE.	
Tls.	cta.	Tls.	cta.
To Balance from 1888	153 58	By Printing and binding Journals...	733 32
" Subscriptions from Members	1,265 83	" Postages	77 17
" Sale of Society's Publications	145 54	" Stationery...	11 36
" Rent from Shanghai Library	100 00	" Advertising	29 44
" Interest allowed by Bank	6 52	" Municipal and Government Land taxes	14 19
		" Repairs and Furniture	56 03
		" Fire Insurance	6 55
		" Wages	24 95
		" Chinese Copying and Translating	8 75
		" Coals and Gas	5 24
		" Return of Subscription overpaid	3 64
		" Taxidermist	22 27
		" Mrs. Gale, honorarium for 1888 and 1889	120 00
		" Commission to Shroff on collections	29 75
		" Balance	532 81
Tls. ...	1,674 47	Tls. ...	1,674 47

E. & O. F.

SHANGHAI, 1890.

Compared with vouchers and found correct,
THOMAS BROWN,
A. L. ROBERTSON.

R. M. CAMPBELL,
Hon. Treasurer.

Appendix II.—CURATOR'S REPORT.

I have the honour to submit herewith my annual report. During the year ended 29th March 1890 the Museum has received the following donations :—

DONATIONS.

July 17th, 1889.—*Xylotrupes dichotomus* (wood-borer beetle), presented by Mr. E. H. PARKER.

August 2nd.—Fœtus of *Nyctereutes procyonoides*, presented by Mr. W. LAY.

September 13th.—*Caprimulgus jotaka* (night jar), presented by Capt. BUCHANAN; *Ardeola prasinosceles* (red-necked heron), presented by Mr. E. HEMBER; small species of bat, presented by Mr. DEIGHTON-BRAYSHER.

November 19th.—*Platalea minor* (lesser spoonbill), rare, presented by Mr. J. ROBERTS; *Clangula glaucion* (golden-eye duck), presented by Mr. J. M. YOUNG.

November 25th.—Skull of *Babyrussa*, from Celebes, presented by Mr. CHAS. MCCASLIN; Specimen of Kauri Gum (New Zealand), presented by Capt. WATTS; *Lepus sinensis* (Chinese hare), presented by Mr. F. A. DE ST. CROIX.

December 16th.—*Chettusia cinerea* (grey peewit), presented by Mr. F. A. DE ST. CROIX; *Rudicilla aurea* (grey-headed redstart) presented by Mr. F. A. DE ST. CROIX.

Cisticola cisticola (fantail warbler), presented by Mr. J. M. YOUNG.

December 16th.—*Coccythraustes personata*, (marked hawfinch), presented by Mr. W. S. EMENS.

January 2nd, 1890.—*Sciurus castaneiventris* (chestnut-bellied squirrel), presented by Mr. F. FERRIS.

January 6th.—*Urocissa sinensis* (Chinese blue magpie), presented by Mr. F. FERRIS, *Anser erythropus* (lesser white-fronted goose),

presented by Mr. DUNCAN GLASS; *Anser* sp? presented by Mr. DUNCAN GLASS; *Janthia cyanura* (blue tail), presented by Mr. T. H. WANG; *Ardea cinerea* (common heron), presented by Mr. C. JANTZEN.

February 10th.—*Merula sinensis* (Chinese blackbird), presented by Mr. C. L. CAMERA; *Canis procyonoides* (raccoon dog), presented by Mr. O. G. READY; *Felis sinensis* (wild cat), presented by Mr. O. G. READY.

February 27th.—*Rallus indicus* (Indian water rail), presented by Mr. F. A. DE ST. CROIX.

Monsieur JANET, a French engineer and an authority on butterflies, has kindly undertaken, at much cost of time, to arrange the collection of butterflies in families and repair many of the broken specimens. From want of books, many of the species could not be determined; the collection, however, contains many rare examples.

Attendance of visitors during the year has been 3,040.

CARL BOCK,

Hon. Curator.

Shanghai, 29th March 1890.

Appendix III.—LIBRARIAN'S REPORT.

The Library has given an unusual amount of work during the year, but is now getting into a more satisfactory condition. It was found necessary to hand over the sale and despatch of the Society's publications to the publishers, KELLY & WALSH, LIMITED, of Shanghai, thus relieving the Librarian of a deal of work. By this transfer of stock of publications from the Library, the room has gained sufficient space for a suitable arrangement of the many valuable books contained in it. Some of the old book-cases have been removed and two large new ones acquired, which fill all available space of two walls of the room. As between seven and eight thousand pamphlets, fascicules of periodicals, papers and books were lying about uselessly, because unbound and uncatalogued, it was found necessary to begin binding at once. This is still going on. The task is a tedious one, taking much time, as many portions of different books were mingled together. Over 400 volumes have been bound during the year by a Chinese binder, who needs every volume put in his hands in proper order, but manages nevertheless to make a mistake now and then. It was unfortunate that the well-trained coolie became ill and died during the summer. His substitute has, so far, been of little help. Mr. T'ANG was engaged, on the 1st January 1890, to assist in preparing a new catalogue. Of the Society's Journal, Fascicule 3 of Vol. XXIII, for the year 1888-89, has been published and distributed during the year. A list of all the publications received by the Library since the date of last report will be found appended.

E. FABER,
Hon. Librarian.

Shanghai, 3rd April, 1890.

**List of Works added to the Society's Library from
1st April 1889 to 31st March 1890.**

A S I A .

C H I N A .

Shanghai :

China Branch of the Royal Asiatic Society :

Journal :

Vol. xxiii complete.

Municipal Council : Report for 1889.

Imperial Maritime Customs, Statistical Department :

Customs Gazette, No. lxxxiii, July-September 1889.

„ lxxxiv, October-December 1889.

Medical Reports for the Half-year ended 30th September
1887. 34th Issue. Shanghai, 1890.

List of Chinese Lighthouses, Light-vessels, etc., for 1890.
18th Issue.

Tariff Returns, 1885. Vols. I. & II. 1889.

Catalogue of the Chinese Imperial Maritime Customs'
Collection at Philadelphia, 1876.

Service List, 1889.

Bulletin Mensuel de l'Observatoire Magnétique et Météorologique
de Zi-ka-wei, Tome xiv, Année 1888. Zi-ka-wei, 1889,
and Nos. 173-182, 1889.

The Chinese Recorder and Missionary Journal, Vol. xx,
Nos. 1-12, 1889.

Peking :

Transactions of the Peking Oriental Society, Vol. ii, Nos. 4 & 5.

Hongkong :

Observations made at the Hongkong Observatory in the year
1888. Hongkong, 1889.

J A P A N .

Tokio :

Mittheilungen der deutschen Gesellschaft für Natur- und Völkerkunde Ostasiens :

Vol. v, 1889, and Supplement.

Rômazi Zasshi (a Japanese Romanised Paper). Files, 1889.

Yokohama :

The Japan Weekly Mail. Files, 1889.

The Japan Herald Mail Summary. Files, 1889.

INDIA.

Bombay :

Journal of the Bombay Branch of the R. A. S.

Vol. xvii, part ii, 1889.

Calcutta :

Proceedings of the Asiatic Society of Bengal :

Nos. 1-6, 1889.

Journal of the Asiatic Society of Bengal :

New Series, Vol. lvii, part i, No. 2, 1888.

" " " " ii, Nos. 1-4, 1888.

Memoirs of the Geological Survey of India.

Palaeontologia Indica. Series xiii, Vol. iv, part i, 1889.

ANNAM.

Saigon :

Bulletin de la Société des Études Indo-Chinoises de Saigon.

Année 1888, 3e fasc.

" 1889, 1er Sem.

Excursions et Reconnaissances, xiv, 1889.

JAVA.

Batavia :

Notulen van de Bataviaasch Genootschap van Kunsten en Wetenschappen :

Vol. xxvii, fasc. 1-3, 1889.

Table of Contents of the Notulen, 1879-1888.

Tijdschrift voor de Indische Taal-, Land- en Volkenkunde.

Vol. xxxiii, fasc. 1-4, 1889.

Nederlandsch-Indisch Plakaatboek, 1602-1811, Part vi. By
J. A. van der Chijs, 1889.

Dagh-Register, Anno 1661. By the same.

De derde Javaan. Successie-Oorlog, 1746-1755. Door P. J. F.
Loun, 1889.

AFRICA.

EGYPT.

Cairo :

Bulletin de la Société Khédiviale de Géographie, 3e Série, No. 2.

AUSTRALIA.

Brisbane (Queensland) :

Proceedings and Transactions of the Queensland Branch of the
Geographical Society of Australasia :

Vol. iv, 1889, and Vol. v, part i.

Melbourne :

Proceedings of the Royal Society of Victoria :
New Series, Vol. i, 1889.

AMERICA.

CANADA.

Toronto :

Proceedings of the Canadian Institute :
Third Series, Vols. vi, vii, 1889.

Montreal :

Geological and Natural History Survey of Canada. Micro-
Paleontology, by E. O. Ulrich, Part ii.

Contributions to Canadian Palæontology. Vol. i, Part ii, 1889.

MEXICO.

Mexico :

Memorias de la Sociedad Científica " Antonio Alzate : "

Vol. i, Fase, 8-12. Vol. ii, 12. Vol. iii, 1-2, 1889.

Anales del Ministerio de Fomento :

Vol. viii, Memoria—Atlas, 1887.

Resumen de 11 Años de Observ. Meteorológicos, 1889.

Anuario del Observatorio Astronómico Nacional, 1889.

Puebla :

Boletín de Estadística del Estado de Puebla :

Tomo iii, 1889.

ARGENTINE REPUBLIC.

Buenos Ayres :

Boletín del Instituto Geográfico :

Vol. x, 6-9, 1889.

UNITED STATES.

Boston, Mass. :

Proceedings of the American Oriental Society at Boston, 1889.

Cambridge, Mass. :

Bulletin of the Museum of Comparative Zoology at Harvard College :

Vols. xvi, 4, 5, 6, xvii, 3, 4, 5, 6, xviii complete.

Annual Report of the Curator of the Museum of Comparative Zoology at Harvard College, for 1888-1889.

New York :

Bulletin of the American Geographical Society :

Vol. xxi, Nos. 1-4.

The Coöperative Index to Periodicals.

Vol. v, Nos. 2-4, 1889.

Journal of Comparative Medicine and Surgery :

Vol. x, Nos. 1, 3, 4.

Philadelphia, Penn. :

Transactions of the Wagner Free Institute of Science :

Vol. ii, Dec. 1889.

Proceedings of the American Philosophical Society :

Vol. xxvi, No. 129, 1889.

Salem, Mass. :

Bulletin of the Essex Institute at Salem :

Vol. xx, 1-12, 1888.

„ xxi, No. 1-6, 1889.

San Francisco, Cal. :

Proceedings of the California Academy of Sciences :

Vol. i, Parts 1 and 2.

Trenton, N.J. :

Journal of the Trenton Natural History Society :

Vol. ii, No. 11, 1889.

Washington, D.C. :

Annual Report of the Board of Regents of the Smithsonian Institution, June 1886, Part 1, 1889.

Bulletin of the United States Geological Survey :

Nos. 9-12, 1889.

U. S. Geological Survey : Mineral Resources of the United States, 1887. Washington, 1888.

Report of the Superintendent of the U. S. Coast and Geodetic Survey, showing the progress of the work during the fiscal year ending with June 1887 :

Part 1, Text. Washington, 1889.

EUROPE.

AUSTRIA-HUNGARY.

Vienna :

Sitzungsberichte der Kaiserlichen Akademie der Wissenschaften :

Vols. cxvi, cxvii, cxviii.

Mittheilungen der K. K. Geographischen Gesellschaft :

Vol. xxxi, 1888.

Jahrbuch der K. K. Geologischen Reichsanstalt :

Vol. xxxviii, Fasc. 4, 1889.

„ xxxix, „ 1-2, 1889.

Verhandlungen der K. K. Geologischen Reichsanstalt :

Nos. 1-17, 1889.

Verhandlungen der K. K. Zoologisch-Botanischen Gesellschaft :

Vol. xxxix, Fasc. 1-2, 1889.

Oesterreichische Monatsschrift für den Orient :

Vol. xv, 1-12, 1889.

Annalen des K. K. Naturhistorischen Hofmuseums :

Vol. iv, Nos. 2-4, 1889.

Mittheilungen der Anthropologischen Gesellschaft :

Vol. xix, 1-4, 1889.

Budapest :

Bulletin de la Société Hongroise de Géographie :

Tome xvii, 1-6, 9, 10.

Trieste :

Bollettino della Società Adriatica di Scienze Naturali :

Vol. xi, 1889.

BELGIUM.

Brussels :

Bulletin de la Société Royale Belge de Géographie :

13^e Année, Fasc. 1-6, 1889.

FRANCE.

Harre :

Bulletin de la Société de Géographie Commerciale :

1889, 5 fasc.

Paris :

Compte-Rendu des Séances de la Société de Géographie :

Nos. 1-17, 1889, except Nos. 8 & 9.

Société d'Ethnographie : Journal Mensuel, 2^e Série, Nos. 26-36.

Bulletin de la Société de Géographie :

7^{me} Série, Tome x, 1-3, 1889.

Bulletin de la Société de Géographie Commerciale :

Tome xi, 2-4.

Tours :

Revue de la Société de Géographie de Tours, 6^{me} Année,
Nos. 1-9 (except No. 4), 1889,

GERMANY.

Berlin :

Sitzungsberichte der Kgl. Preussischen Akademie der Wissenschaften zu Berlin : 1889, No. 1, xxxviii,

Phil. und Hist. Abhandlungen der Kgl. Ak. der Wissenschaften zu Berlin, 1889.

Verhandlungen der Gesellschaft für Erdkunde zu Berlin :

Vol. xvi, Fasc. 1-10 (except 3), 1889.

Zeitschrift der Gesellschaft für Erdkunde zu Berlin :

Vol. xxiv, 1-5.

Verhandlungen der Berliner Gesellschaft für Anthropologie,

Ethnologie und Urgeschichte : 1889, Heft 1-7.

Orientalische Bibliographie :

Vol. ii, 4, 5, 1889, Vol. iii, 3, 4, 1889.

Bremen :

Deutsche Geographische Blätter :

Vol. xii, 1-4, 1889.

Frankfurt a/ Oder :

Monatliche Mittheilungen aus dem Gesammgebiete der Naturwissenschaften :

Vol. vi, Nos. 1-6, 12, Vol. vii, 2-5.

Societatum Litterae, von Dr. Ernst Huth, Vol. iii, 2-6.

Gotha :

Dr. A. Petermann's Mittheilungen :

Vol. 35, 1-12, 1889,

Ergänzungshefte : Nos. 95-96.

Halle a/ Saale :

Mittheilungen des Vereins für Erdkunde, 1889,

Hamburg :

Mittheilungen der Geographischen Gesellschaft in Hamburg, für
1888, Fasc. ii, iii. Hamburg, 1889.

Jena :

Mittheilungen der Geographischen Gesellschaft zu Jena :
Vol. vii, Fasc. 3, 4, 1889.

Koenigsberg i/ Pr. :

Schriften der Physikalisch-oekonomischen Gesellschaft :
Vol. xxix.

Leipzig :

Zeitschrift der Deutschen Morgenländischen Gesellschaft :
Vol. xliii, 1-4, 1889.
Mittheilungen des Vereins für Erdkunde, 1889.

Metz :

Jahresbericht des Vereins für Erdkunde zu Metz : Vol. xi.

Munich :

Sitzungsberichte der Mathematisch-physikalischen Classe der
K. Akademie der Wissenschaften : 1888, 1889.
Sitzungsberichte der Philosophisch-philologischen und Historis-
chen Classe : 1888, 1889.

Stuttgart :

Handelsgeographie, vii, viii.
Jahresbericht, 1888, 1889.

GREAT BRITAIN AND IRELAND.

Dublin :

The Scientific Proceedings of the Royal Dublin Society :
Vol. vi, 3-6, 1888-1889.

Edinburgh :

The Scottish Geographical Magazine :
Vol. v, 1-12, 1889.

London :

- Journal of the Anthropological Institute :
 Vols. xviii, Nos. 3, 4, xix, 1, 2, 1889.
- The Quarterly Journal of the Geological Society :
 Vol. xlv, 1-4, 1889.
- Proceedings of the Royal Geographical Society :
 Vol. xi, 1-12, 1889.
- Proceedings of the Royal Society :
 Vol. xlv, Nos. 276-284.
- Journal of the Royal Statistical Society :
 Vol. lli, Parts i, iii, iv, 1889.
- Proceedings of the Zoological Society of London, 1889.
- „ „ „ Society of Biblical Archaeology :
 Vol. xi, Nos. 7-8, Vol. xii, Nos. 1-3, 1889.
- Trübner's American, European and Oriental Literary Record :
 Third Series, Vol. i, Parts 1-3.
- Trübner and Co's Monthly List, Vol. xiii, 1-12.
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- The Journal of the Manchester Geographical Society :
 Vol. v, 1-3, 1889.
- Proceedings of the Royal Physical Society, 1888-1889.

ITALY.

Florence :

- Giornale della Società Asiatica Italiana :
 Vol. iii, 1889.

Naples :

- Bolletino della Società Africana d'Italia :
 Vol. viii, 1-10.

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PORTUGAL.

Lisboa :

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RUSSIA.

Moscow :

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Vol 1, 2, 4, 1889.

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Tome xv, liv. 6.

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Acta Horti Petropolitani : Vol. x, Fasc. ii, 1889.

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Vols. xxiv, xxv, 1889.

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Stockholm :

Ymer Tidskrift, 1889.

SWITZERLAND.

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Tome iv.

Miscellaneous Works.

- 1.—The North-Western Provinces and Oudh Provincial Museum,
Lucknow : Minutes of the Managing Committee,
1883-1888. Allahabad, 1889.
- 2.—Les Débuts de la Compagnie Royale de Suède. Par
H. Cordier. Paris, 1889.

- 3.—The Modern Vernacular Literature of Hindustan. By G. A. Grierson. Calcutta, 1889.
 - 4.—Die Schu-king-Finsterniss. Von Dr. G. Schlegel und Dr. F. Kühnert. Amsterdam.
 - 5.—Jubiläumsschrift. Von Paul E. Richter. Dresden, 1889.
 - 6.—Estudio de la Filosofía y Riqueza de la Lengua Mexicana. Guadalajara, 1889.
 - 7.—Liste des Ouvrages offerts à l'Auguste Protecteur du VIII^e Congrès à Stockholm.
 - 8.—An Account of the Congo Independent State. By H. Phillips, jr. 1889.
 - 9.—A Grammar of the Kwagintl Language. By the Rev. A. T. Hall. Montreal, 1889.
 - 10.—China's Place in Philology. By the Rev. J. Edkins, D.D. London, 1871.
 - 11.—Rev. Dr. E. Faber's Works: Digest of Confucius, Mencius, Licius, Micins, Introduction to the Science of Chinese Religion, Famous Men of China, The Status of Women in China.
 - 12.—Discours d'Ouverture à Stockholm. Par le Comte C. de Landberg.
-

OBITUARY.

REV. ALEXANDER WILLIAMSON, LL.D.

The death of Dr. ALEXANDER WILLIAMSON, on August 28th of this year, at Chefoo, deprives our Society of one of its oldest members and of a contributor to our *Journal* of many years' standing.

His *Journeys in North China, Manchuria and Mongolia*, in two volumes, contain many valuable observations on the regions he visited as a missionary traveller. He was among the first to make known the mineral treasures of North China, taking his place in this respect with PEMPELLEY and VON RICHTHOVEN. The latter in his large work on China fully recognizes Dr. WILLIAMSON'S contributions to our knowledge. It was this book which led to his receiving the honorary degree of LL.D. from the University of Glasgow, where he had received his collegiate education. His little book *The World: Whence cometh it?* by "Tu Quoque" shews much familiarity with modern science. He took a very decided pleasure in reading books of science by contemporary authors, and the knowledge thus acquired has enriched his works in Chinese. In this language he published a work on Botany, a Natural Theology out of MCCOSH, a Life of Christ and a History of Religions. He also wrote much on political science, sociology, education and kindred subjects. Perhaps MCCOSH'S *Method of the Divine Government* was the chief influence on him as a translator, and it was this which led to that happy combination of modern science with religious teaching which characterizes his works in Chinese. He secured writers having facility in style, and as a translator he thought out the ideas himself, mastered them, clothed them in his own language.

turned them into Chinese colloquial and then left the control of the style in the Chinese writer's hands. He wrote much in monthly periodicals in Chinese and was an occasional contributor to the *Shên-pao* daily newspaper. In the literature of the Protestant Missions his works take a high place. He had a faculty for exposition and a keen avidity for acquiring knowledge which stood him in good stead in making books. By their tincture of philosophy and science an elevated tone was imparted to them. Several of his books have been reprinted in Japan. All are in a high degree readable and valuable.

Illness led to Dr. WILLIAMSON'S retirement from China in 1858 and prevented his return for five years. He gave in all thirty years to China, and not only worked usefully himself as a translator, but was very active and successful in founding societies and obtaining funds to print works translated by others. This is shewn in the history of the School and Text Book Series and of the Society for the Diffusion of Christian and General Knowledge among the Chinese.

J. EDKINS.

LIST OF OFFICERS OF THE SOCIETY FOR 1890-91.

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LIST OF MEMBERS.

(Corrected to 20th October 1890.)

Members are particularly requested to notify the Hon. Secretary of any change of address or other necessary correction to be made in this List.

† Indicates a Member who has contributed to the Society's Journal.

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-------	----------	------------------

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†Giles, Herbert A. ...	British Consulate, Ningpo ...	1880
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† Anderson, G. C.	C/o Messrs. Jardine, Matheson & Co., Hongkong	1880
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Name.	Address.	Year of Election
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Goebel, Max.	Belgian Consulate-General, Shanghai	1890

LIST OF MEMBERS.

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Name.	Address.	Year of Election
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Milles, W. J., F.R.C.S.	Szechuen Road, Shanghai	1885
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Moule, Ven. Archdeacon A. E., B.D.	C/o Church Missionary Society, Shanghai	1888
Mowat, B. A.	H.B.M.'s Supreme Court, Shanghai .	1838
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Murray, D. S.	British and Foreign Bible Society, Shanghai	1887
† Nocentini, L.	Via dei Proconsolo, 21; Firenze, Italy	1884
Novion, A.	C/o Mons. Quentin, 7, Rue J. J. Bell, Bordeaux, France	1885
Nully, R. de	Custom House, Shanghai	1884

Name.	Address.	Year of Election
Ohlmer, E.	Custom House, Foochow	1885
Ottomeier, P. A. W.	Messrs. Hopkins Dunn & Co., S'hai	1886
Oxenham, E. L.	C/o Messrs. Maynard, Harris & Co., 126 Leadenhall Street, London, E.C.	1887
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Rathsam, Th.	German Consulate, Canton	1887
Rayner, Charles	C/o Messrs. Carlowitz & Co., Tientsin	1886
Rees, Claude A.	Messrs. Gilmour & Co., Shanghai	1889
Reinsdorff, F.	German Consulate, Seoul, Corea	1883
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†Rhein, J.	Netherlands Consulate, Amoy	1877
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Robinson, Prof. Henry H., B.A.	Wuchang	1890
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§Rocher, Louis	Custom House, Ningpo	1884
Rockhill, W. W.	No. 1620, 19th St., Washington, D.C.	1885
Rosthorn, A. Edler von	C/o Custom House, Ichang	1888
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Russell, Sir Jas., C.M.G.	Hongkong	1870
Sampson, Theo.	12, Madeira Road, Streatham, Lon- don, S.W.	1868
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Samwer, Ernst	Cöln a/R, Germany	1886
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Schmidt, K.	Messrs. Carlowitz & Co., Shanghai	1888
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Seckendorff, Baron Edm. von,	German Consulate, Tientsin	1880

BOTANICON SINICUM.

NOTES ON CHINESE BOTANY FROM NATIVE AND
WESTERN SOURCES.

BY

E. BRETSCHNEIDER, M.D.,

*Late Physician to the Russian Legation at Peking,
Membre corresp. de l'Institut de France.*

PART II.

THE BOTANY OF THE CHINESE CLASSICS.

WITH ANNOTATIONS, APPENDIX AND INDEX

BY

REV. ERNST FABER, DR. THEOL.

SHANGHAI:

Printed by KELLY & WALSH, LIMITED, The Bund.
HONGKONG, YOKOHAMA & SINGAPORE.

1892.

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CORRIGENDA AND ADDENDA TO PART I.

[See Vol. XVI of the *Journal of the China Branch of the Royal Asiatic Society*.]

P. 28, line 8, for *Tai* read *T'ü*.

P. 37, " 12, for *yen* read *jan*.

P. 53, " 6 from bottom, for *jen* read *yen*.

P. 60, " 8 " " for 問 read 問.

P. 62, " 8 " " for *tsao* read *sao*.

P. 65, " 12 " " for 栗 read 栗.

P. 77:—The *T'ü min yao shu* was republished in 1882 in Wu ch'ang fu (Hupel). The name of its author is KIA SZ'-HIE (not NIU, 牛 being a misprint for 叶).

P. 62:—*Nung cheng ts'üan shu*. A detailed account of this Chinese work on husbandry is found in the *Journal of the Horticultural Soc.*, London, Vol. IX, 1855, p. 257 seqq.: "Analysis of a Chinese Work on Husbandry and Botany;" by Sir J. F. DAVIS, Governor of Hongkong.

P. 150, No. 183:—I stated that the treatise *Hua pu* by YÜ MO-CHAI was written in the present dynasty. But I subsequently found that it is of an earlier date, for it is quoted in the *Pen ts'ao kang mu* [XXIII, 23] at the end of the article *ying su* (poppy).

P. 153, No. 226:—The author KUNG SIN is sometimes quoted in the *Pen ts'ao kang mu* under the name of 龔雲林 KUNG YÜN-LIN.

P. 162, No. 349:—*Ko ku yao lun*. Compare *China Review*, X, 308, Dr. EITEL's note on this work:—Discourses on Criticisms of Ancient Art-Treasures; by 曹明仲 TS'AO MING-CHUNG; published A.D. 1387.

P. 184, between No. 683 and 684, insert:—

No. 683a.—*上林苑賦* *Shang lin yüan fu*, a poem on the Imperial Gardens Shan lin yüan, at the Chinese capital Ch'ang an, by 司馬相如 SZ' MA SIANG-JU, who lived in the second century B.C. [†126]. This poem is occasionally quoted in Chinese botanica works with respect to rare plants referred to in it. [Compare *Botan. sin.*, I, p. 24, note.]

P. 190, between No. 770 and 771, insert:—

No. 770a.—*西洋朝貢典錄* *Si yang ch'ao kung tien lu* (Records of the Tribute sent to the Court of China by the Countries of the Western Ocean); by 黃省曾 HUANG SHENG-TS'ENG, who lived during the early portion of the 16th century. [Compare MAYERS in *China Review*, III, 220]. This work gives many interesting details regarding the vegetable productions of the countries of the Indian Ocean. HUANG SHENG-TS'ENG is, I suspect, identical with the author of the same name who wrote several treatises on plants and beasts. [See *Botan. sin.*, Nos. 96, 249, 744.]

P. 196, No. 854 :—*Tan fang kien yüan*, an alchemistic work. It was published in the Tang dynasty, as is stated in the *Pen ts'ao kang mu*, [XVIIb, fol. 30, art. 鬼臼].

P. 205, between No. 991 and 992 Insert :

991a.—**東西洋考** *Tung si yang k'ao* (Researches on the Eastern and Western Ocean); published in 1618 by WANG CH'U-TSUNG, Superintendent of Revenue in Nanking, and some other functionaries. [See GROENEVELDT, *Notes on the Malay Archipelago*, etc., 1876, p. viii.] It contains also notices of plants and vegetable productions of foreign countries brought to China by merchants. There are in it two interesting Chinese Customs' tariffs referring to the years A.D. 1583 and 1615, and enumerating a number of foreign drugs and other articles.

P. 209, No. 1047, for *Chao i* read *Chao ye*.

P. 218, Index, column 3, under K'ang. Only the first two names begin with K'ang, the following six should begin with "Kao :"—Kao Ch'eng, etc.

A similar mistake in the Index occurs on p. 220, column 2, under Sung. The last two names should begin with Sz' :—Sz' MA KUANG, Sz' MA TS'EN.

INTRODUCTION.

While bringing before the public a new instalment of my *Botanicon sinicum*, I have to apologize for the long interval which has elapsed, nearly ten years, since the appearance of the first or general part. The delay was occasioned for the most part by scientific occupation in other fields.

The subject to be dealt with in the subsequent pages is the Chinese names of plants occurring in the Chinese Classics and some other Chinese works of remote antiquity, and their botanical identification, as far as the scanty ancient records regarding these plants and the present state of our knowledge of the Chinese Flora will permit. The edition of the Chinese Classics in an English translation, first undertaken by an accomplished scholar, thirty years ago, is now nearly complete, and this gigantic work has imperishably connected the name of the eminent sinologue referred to with these Records of ancient Chinese civilisation. The first five (*i.e.* eight) volumes of Dr. LEGGE's *Chinese Classics*, published in China, reproduce the Chinese text. It is a matter of regret that the translation of the *Li ki* or Book of Rites, which LEGGE published in 1885 in Vols. XXVII and XXVIII

of MAX MÜLLER's *Sacred Books of the East*, is without the original.¹

LEGGE's *Classics* form, of course, the principal basis of my investigations. The great merit of his elaborate edition is, that all the valuable information on various subjects scattered in the bulky Chinese editions of the Classics and their commentaries, has now been made easily accessible to European savants. LEGGE translates, besides the Chinese text of the Classics, most of the Chinese commentaries on the subject written by Chinese scholars of different periods, and his own criticism always shows admirable good sense. As to his attempts to identify Chinese names of natural objects, LEGGE, who does not pretend to be a naturalist, is sometimes mistaken, but on the whole it must be said that even in this field of investigation the author has done much towards the elucidation of dubious questions. In his *Shi king*, he makes constant reference to some modern Japanese plates illustrating this Classic, and especially the beasts, birds, insects and plants mentioned in it. As the greater part of the plants figured in Japanese botanical works have been identified by European botanists, LEGGE generally depends upon these identifications. Occasionally he also relies upon identifications given in MEDHURST's and WILLIAMS' Dictionaries.

The names of plants occurring in the Chinese Classics are still for the most part in use and applied to the same plants

¹ It is not obvious why LEGGE, in his translation of the *Li ki*, changed the mode of transliterating Chinese sounds adopted by him for all his previous translations. His new transliteration is not a happy one, and gives rise to confusion. Thus the 周 *Chou* dynasty, in his *Li ki*, is termed *Kau*, the 春秋 *Ch'un ts'ün* is changed into *K'ün k'ün*. His excellent translation, therefore, is not always easily understood without the Chinese text at hand. Besides this, the new transliteration does not seem to be familiar to him, and he occasionally commits errors. [Comp. I, p. 20, *K'ün* dynasty, and p. 294, note 1, *Z'ün*. In both cases he means the 秦 *Trin* dynasty.]

nowadays. But in not a few cases the characters denoting plants in the classical period became altogether obsolete in later times, or lost their original meaning, and are now not applied to plants. Regarding such obscure characters and passages, the Western translator of Chinese classical writings finds himself constrained to rely entirely upon the frequently unsatisfactory commentaries of Chinese scholars who lived many centuries after the time of CONFUCIUS, and who never produce proofs for their assertions. Thus the character 茶 *t'u*, which is of frequent occurrence in the *Shi king*, is said by the Chinese commentators to denote entirely different plants in different passages of this Classic, viz.: Sow-thistle, smart-weed, rushes, and it appears that this was also an ancient name to designate the tea-plant [comp. *infra*, 307].

The character 條 *t'iao* nowadays means the branch of a tree. It has the same meaning in the *Shi king* and in other Classics. But in one passage in the *Book of Poetry* the Chinese commentators make it mean the Catalpa tree [LEGGE says white fir] comp. *infra*, 511. The *Rh ya*, 236, gives *t'iao* as a name for the punelo. The character 苽 *k'i*, in the Classics, is said by some authors to mean millet, others take it to be lettuce [comp. *infra*, 346, 364].

Considering these difficulties encountered in the critical investigation of ancient Chinese writings, and especially in ascertaining the correct meaning of characters applied to plants in early ages, the reader must not expect a completely satisfactory botanical elucidation of the matter, the design of this paper being merely to show what can be done in the way of botanical explanation of Chinese classical names of plants.

NOTES ON CHINESE, JAPANESE AND EUROPEAN
WORKS CONSULTED IN THE PREPARATION
OF THIS PAPER.

The books recognized as of highest authority in China, and which we are accustomed to term the "Chinese Classics," are comprehended under the denominations of the 五經 *wu king*, or five *king*, and the 四書 *sz' shu*, or four *shu*.

The five *king* or canonical works are

- (1.) The 易經 *Yi king*, or Book of Changes.
- (2.) The 書經 *Shu king*, or Book of History.
- (3.) The 詩經 *Shi king*, or Book of Poetry.
- (4.) The 禮記 *Li ki*, or Record of Rites.
- (5.) The 春秋 *Ch'un ts'iu*, the Spring and Autumn Annals.

The authorship, or compilation rather, of all these works is loosely attributed to CONFUCIUS, but much of the *Li ki* is from later hands.

The four *shu*, or four books [of the four philosophers] are

- (1.) The 論語 *Lun yü*, or "Digested Conversation," being occupied chiefly with the sayings of 孔子 K'UNG tsz' (CONFUCIUS) [B.C. 551-479].
- (2.) The 大學 *Ta hio*, or Great Learning, commonly attributed to 曾參 TSENG SEN, a disciple of the sage, born B.C. 506.
- (3.) The 中庸 *Chung yung*, or Doctrine of the Mean, ascribed to 孔伋 K'UNG KI [B.C. 500-438], the grandson of CONFUCIUS.
- (4.) The works of 孟子 *Meng tsz'*, or MENCIUS [B.C. 372-289].

In the famous compilation of the classical books undertaken by order of the Emperor T'AI TSUNG [A.D. 627-649] of the T'ang dynasty, there are thirteen *king* :—

- (1.) The 易經 *Yi king*, or Book of Changes.
- (2.) The 書經 *Shu king*, or Book of History.
- (3.) The 詩經 *Shi king*, or Book of Poetry.
- (4.) The 禮記 *Li ki*, or Record of Rites.
- (5.) The 周禮 *Chou li*, the Ritual of the Chou dynasty [*v. infra*].
- (6.) The 儀禮 *I li*, or Decorum Ritual [*v. infra*].
- (7-9.) 春秋三傳 *Ch'un ts'iu san chuan*, the Spring and Autumn Annals, with the three expositions or annotations [*v. infra*].
- (10.) The 論語 *Lun yü*, Sayings of CONFUCIUS.
- (11.) 孟子 *Meng tz'ü*, the Works of MENCIUS.
- (12.) The 孝經 *Hiao king*, or Classic of Filial Piety [*v. infra*].
- (13.) The 爾雅 *Rh ya*, an ancient Dictionary [*v. infra*].

The *Ta hio* and the *Chung yung* do not appear in this list, for they are contained in the *Li ki*.

The same arrangement is found in the great edition of the Classics which appeared in 1815 with the title 十三經註疏 *Shi san king chu shu*, the Thirteen Classics with the commentaries. The character 註 refers to the earlier commentators, of the Han and Tsin dynasties, whilst 疏 denotes the explanations, glosses, etc., of authors of the T'ang and Sung dynasties.

The 易經 *Yi king*, or Book of Changes, has been translated by LEGGE in MAX MÜLLER's edition of the *Sacred Books of the East*, 1882, Vol. XVI. It is of no interest for our investigations.

The 書經 *Shu king*, or Book of History, termed also 尚書 *Shang shu*, was originally compiled by CONFUCIUS from the historical remains of the Yu, Hsia, Shang and Chou dynasties. Besides some scattered notices of Chinese plants, this Classic contains a chapter 禹貢 *Ya kung*, or Tribute of the Emperor Yü, which presents a peculiar interest for us. This is a geographical description of ancient China, referring to about B.C. 2200, in which are enumerated the principal natural productions of the nine provinces into which China was then divided. [LEGGE's *Classics*, III; 2 volumes, 1865.]

The 詩經 *Shi king*, or Book of Poetry. [LEGGE's *Classics*, IV; 2 volumes, 1871, 1872.] The *Shi king* is a collection of odes, ballads and songs used by the people of the various petty states of China in ancient times. LEGGE has proved that the *Shi king*, arranged very much as we now have it, was current in China long before CONFUCIUS. After the burning of the records of the past by order of the Emperor TS'IN SHI [B.C. 220], and the fall of the short-lived Ts'in dynasty, three different texts of the *Shi king* which had escaped the catastrophe made their appearance in the Han dynasty when the edict suppressing literary works had been repealed. Only one of these texts has come down to us. It is called 毛詩 *Mao shi*, the *Shi king* of MAO, which is the Book of Poetry in its present form. This text belonged to 毛亨 MAO HENG, a native of Lu. He is also termed 大毛 MAO, the GREATER MAO. He was a disciple of 荀子 SUN Tsz', who lived in the third century B.C., and wrote a commentary on the *Shi king*, which was lost. But he had communicated his knowledge of the *Shi* to another MAO, 毛萇 MAO CHANG, also called 小毛 SIAO MAO, the LESSER MAO, who was a great scholar at the court of 獻王 king HIEN of 河間 Ho kien (in the Province of Chili), a brother of the Emperor WU TI [B.C. 140-86]. King HIEN was one of the most diligent labourers

for the recovery of ancient books, and presented MAO's text and the work of HENG at the court of the Emperor KING. LEGGE says probably in B.C. 129, but KING TI reigned B.C. 156-140. CHANG himself published his explanation of the *Shi* 毛氏詩傳 in 29 chapters, which still remains.

The *Shi king* is especially rich in Chinese names of plants, cultivated economic plants and wild-growing herbs and trees. CONFUCIUS said [*Analects*, p. 187] that from the *Shi* we become extensively acquainted with the names of birds, beasts and plants. The names of a number of cultivated and wild plants appear in the first of the Odes of Pin, entitled 七月 *Ts'i yüe*, which is of high antiquity. It is accepted by the famous Duke of Chou [12th century B.C.] as a description of the life in Pin in the olden days [comp. *Shi king*, 226]. 邠 or 邠 *Pin* was a small principality in Southern Shensi, Pin chou fu, where the chiefs of Chou dwelt for nearly five centuries [B.C. 1796-1325].

Ancient names for grains are mentioned in the Ode 生民 *Sheng min*, p. 465, which is devoted to the legend of 后稷 HOU TSI, to whom the princes of Chou traced their lineage [comp. *Botan. sin.*, I, 76], and likewise in the Ode 采芣苢 *Pi kung*, praising HOU TSI [*Shi king*, 620].

In the second half of the third century of our era 陸機 LU KI, a distinguished functionary in the kingdom of 吳 Wu [south of the Yang tsz'], wrote a commentary in two books on the herbs, trees, birds, beasts, insects and fishes mentioned in MAO's version of the *Shi king*, 毛詩草木鳥獸蟲魚疏 *Mao shi ts'ao mu niao shou ch'ung yü shu*. It is found in the collection of books of the Han, Wei, etc., periods [*Botan. sin.*, I, 135]. LEGGE states that the original work was lost, and that that now current was compiled, it is not known when or by whom, mainly from K'UNG YING-TA, who in his commentaries on the *Shi king* quotes the corresponding

descriptions of plants from LU KI's treatise. But there are fragments of other texts of it extant quoted by other ancient authors and preserved in the *Pen ts'ao kang mu*, the *Tu shu tsi ch'eng*, etc., which sometimes differ from the text in the *Han Wei ts'ung shu*. LU KI treats only of the wild-growing plants of the *Shi* (nearly 100). His commentaries on plants, at least in the mutilated and corrupt form in which they have survived, are of little value, his descriptions being generally extremely vague and sometimes unintelligible. For instance, when he uses the character 子 *tsz'* we are always in doubt whether he means fruit or seed, for he applies the same term to both, although the Chinese have a special character 實 *shi* to designate the fruit of plants, while the seed is 子 *tsz'*. Nevertheless LU KI has always been considered as an authority by later Chinese commentators on the *Shi*.

Regarding the *Li* Classics, I may be allowed to follow LEGGE in his clear exposition of the subject.

There are now three Chinese Classics into which the term *Li* enters, the 儀禮 *I li*, the 周禮 *Chou li* and the 禮記 *Li ki*, frequently styled, both by the Chinese themselves and by sinologists, the "three Rituals." The first two are books of the Chou dynasty [B.C. 1122-249], the third, the *Li ki*, may contain passages of an earlier date, but as a collection, in its present form, it does not go higher than the Han, and was not completed till the second century B.C.

At the rise of the Han dynasty [B.C. 206] the *I li* and the *Chou li* were in a condition of disorder and incompleteness. They had suffered with the other books from conflagrations and proscriptions. The sovereigns of the Han undertook the task of gathering and arranging the fragments of the ancient works. In B.C. 164, the Emperor WEN TI ordered the great scholars to compile the "Royal Ordinances," the fifth book of the *Li ki*.

Internal evidence shows that when this treatise was made, the *I li*, or portions of it at least, had been recovered. Afterwards king HIEN of Hokien [*v. supra*], who was a patron of literary men, added a mass of tablets to the *I li*. The recovery of the *Chou li* came not long after. Someone brought to king HIEN of Hokien the tablets of the *Chou li*, then called 周官 *Chou kwan*, or Official Book of the Chou. The *Chou li* is a constitutional, not a ritual, work. Since the Tang dynasty it has been known by its present title.

The most distinguished of the *Li* scholars in the time of the Emperors HÜAN [72-48 B.C.] and CH'ENG [32-6 B.C.] was 后蒼 HOU TS'ANG, the author of the compilation called in the catalogue of 劉歆 LIU HIN [some years before our era], 曲臺記 *K'ü t'ai ki*. Two of his disciples 戴德 TAI TE and 戴聖 TAI SHENG, cousins, were also celebrated for their ability. TE, the elder of the two, commonly called 大戴 TA TAI, the GREATER TAI, digested the mass of *p'ien* [214] of the *Li* books and reduced the number to 85. The younger TAI, 小戴 SIAO TAI, doing the same for his cousin's work, reduced it to 46. This second condensation met with general acceptance and was styled the 禮記 *Li ki*.

The *Li* of the GREATER TAI, the 大戴禮 *Tu Tai li*, was a voluminous compilation. As the shorter work of his cousin obtained a wide circulation, his fell into neglect. A portion of it is still current, and found in the large collection of books of the Han and Wei dynasties, 39 books in 10 sections. It includes the fragment of the Hsia dynasty [B.C. 2205-1766] 夏小正 *Hia siao ch'eng*, or Calendar of the Hsia. This, an undoubted record of the Hsia epoch, said to have been found in the grave of CONFUCIUS, is a very obscure document, for the most part completely unintelligible without the commentaries by different ancient authors. It notices, in the form of aphoristic sentences, 122 in number, various natural

phenomena, the proceedings of husbandry, and the changes which successively take place in the appearance of the vegetable and animal world in the twelve months of the year. The year of the Hia began, as it does at the present time in China, between the 20th January and 19th February. More than thirty names of plants occur in the text. The Calendar of the Hia was translated into French by E. BIOT in the *Journal Asiatique*, 1840, b. p. 551-560. An English version of it, along with the Chinese text, was published in 1882 by Professor R. K. DOUGLAS, of King's College, in the short-lived *Orientalia antiqua*, edited by M. TERRIEN DE LA COUPERIE.

The 禮記 *Li ki* contains much interesting information regarding Chinese economic plants, especially those used for food, viz., cereals, vegetables and fruits. [See Chap. I, *k'a li*, Universal Ritual; III, *waij ki*, Royal Regulations; X, *nei ts'ü*, Family Rites.] One of the most interesting chapters of the *Li ki* for our investigation is IV—the 月令 *Yü ling*, Proceedings of Government in the different months—as LEGGE translates it. It is ascribed to 呂不韋 *Lü Pu-wai* [d. B.C. 237], but evidently his compilation was based upon ancient records. The *Yü ling* is a counterpart of the *Hia siao ch'eng*, and likewise notices the proceedings of husbandry and the plants and animals making their appearance in each month of the year. It is therefore also termed the "Calendar of the Chou Dynasty" [B.C. 1122-249]. The year of the Chou always commenced with our December.²

² A similar ancient document is found in the 周書 *Chou shu*, which latter belongs to the so-called Bamboo Books—ancient writings on bamboo, discovered A.D. 279, in a grave. It is entitled 時訓解 *Shi hün kiai* and resembles much the *Yü ling* in its contents. It was translated by BIOT in the *Journal Asiatique*, 1840, b. p. 561-568, with the title, "Exposition des saisons."

The 周禮 *Chou li*, or Official Book of the Chou dynasty, gives the details of the various offices established under the Chou. It is generally regarded as the work of the Duke of Chou [B.C. 1130]. This has been translated into French by BIOT—*Le Tcheou li, ou Rites des Tcheou*, 1851, 2 vols.

A great many plants are mentioned in the *Chou li*. BIOT has caused much confusion by his attempts to identify the Chinese names of these plants.

The 儀禮 *I li*, or Decorum Ritual, treats of family affairs and directions for domestic life. It has not yet been translated into any European language.

The 春秋 *Ch'un ts'iu*, Spring and Autumn Annals, the only one of the five Classics actually written by CONFUCIUS, is a history of his native state 魯 Lu, from B.C. 722 to 484. An amplification of the original work was made by one of his pupils 左邱明 Tso KIU-MING, his work being named 左傳 *Tso chuan*, or Tso's Narrative. [LEGGE's *Classics*, V, 2 vols. The *Chun tseu* and the *Tso chuan*, 1872.]

LEGGE's *Classics*, Vol. I, 1861, contains the Confucian Analects, 論語 *Lun yü*, the Great Learning, 大學 *Ta hio*, and the Doctrine of the Mean 中庸 *Chung yung* [*v. supra*].

LEGGE's *Classics*, Vol. II, 1861, contains Mencius 孟子 *Meng tzzi* [*v. supra*].

The 孝經 *Hiao king*, Classic of Filial Piety. It claims to be a conversation held between CONFUCIUS and his disciples *Tseng sen*. Translated by LEGGE, 1879, in MAX MÜLLER's *Sacred Books of the East*, Vol. III.

The ancient Dictionary *Rh ya*. [*See infra*, Chap. I.]

Among the numerous Chinese commentators on the Classics, the following are the most conspicuous :—

毛亨 MAO HENG and 毛萇 MAO CH'ANG—the GREATER and the LESSER MAO—to whom the present text of the *Shi king* is attributed. The elder MAO lived in the first half, the younger in the second half, of the second century B.C. LEGGE states that it is not positively determined which of them wrote the explanations of the *Shi*. The editors of the thirteen Classics, however, attribute them to the elder MAO [see the first page of the *Shi king*, where we read 毛亨注]. MAO's explanations, as far as plants are concerned, are very short and unsatisfactory. He confines himself generally to quoting the *Rh ya*.

孔安國 K'UNG AN-KUO. He lived in the second century B.C., deciphered the ancient text of the *Shu king* and commented upon it.

鄭司農 CHENG SZ'-NUNG. First century of our era. He commented upon the *Chou li*. Commentator "A." of BIOT.

賈逵 KIA K'UL. A.D. 30-101. He commented upon the *Shi king* and the *Tso chuan*.

馬融 MA YUNG. A.D. 79-166. He commented upon the *Li ki*, the *Shi king* and other Classics.

鄭玄 CHENG HÜAN or 鄭康成 CHENG K'ANG-CH'ENG, a disciple of MA YUNG [A.D. 127-200]. He wrote a supplementary commentary to MAO's *Shi*, and commented upon the *Li ki* and *Chou li*. Commentator "B." of BIOT.

王肅 WANG SU. Middle of the third century of our era. He commented upon the *Shi king*.

杜預 TU YÜ. A.D. 222-84. He commented upon the *Ch'un ts'iu*.

陸機 LU KI. A.D. 261-303. He described the plants, beasts, etc., of the *Shi king*. [V. *supra*.]

孔穎達 K'UNG YING-TA. A.D. 574-648. He commented upon the *Li ki*, the *Shi king*, the *Shu king* and the *Ch'un ts'iu*.

賈公彥 KIA KUNG-YEN. T'ang dynasty, 8th century. He commented upon the *Chou li*. Commentator "C." of BIOT.

朱熹 CHU HI. A.D. 1130-1200. Eminent Chinese philosopher. He commented upon the *Shi king*. LEGGE has a high opinion of his critical judgment. His notices regarding plants, however, are not always trustworthy.

王昭禹 WANG CHAO-YÜ. 12th century. He commented upon the *Chou li*. Commentator "D." of BIOT.

嚴粲 YEN TS'AN. 13th century. He wrote a commentary on the *Shi king*. LEGGE ranks him next to CHU HI.

Besides the Classics, there are many other Chinese works of high antiquity in which plants are mentioned. I may notice the following:—

竹書 *Chu shu*, the Bamboo books, is the name appropriated to a large collection of ancient documents, nearly 20 different works written on bamboo tablets, and discovered, A.D. 279, in the tomb of one of the princes of the state of Wei, who died 295 B.C. One of these is the 竹書紀年 *Chu shu ki nien*, Bamboo Record, or Annals. This commences with the reign of HUANG TI and extends to B.C. 299.

An English translation of the Bamboo Annals, along with the Chinese text, has been given by LEGGE in his *Shu king*, Proleg. 105-183. My quotations are taken from this translation.

Another book of this collection is the 汲冢周書 *Ki chung Chou shu*, a record of the Chou dynasty. [See *Botan. sin.*, I, No. 247].

The 山海經 *Shan hai king* is by its title the Classic of the Mountains and Seas, but WYLIE calls it more correctly the Hill and River Classic. It is generally ascribed to the Emperor YÜ [B.C. 2200] and professes to give a descriptive account of charts of the nine provinces engraved on nine

metal vases which YÜ had caused to be cast of metal received from the nine provinces of China. Regarding these nine vases (九鼎 *Kiu ting*) see LÉGGE's *Tso chuan*, p. 293, and Bamboo Annals, p. 175, where the history of these vases is related. See also BAZIS's interesting account of the *Shan hai king* in the *Journal asiatique*, VIII, 1839, p. 337 seqq.

There can be no doubt that the *Shan hai king* is a book of remote antiquity. 子夏 Tsz' HIA, 5th century B.C., one of the disciples of CONFUCIUS, is reported in the 家語 *Kia yu*, or Family Sayings of CONFUCIUS, to have mentioned the 山經 *Shan king*, Hill Classic, evidently the same as the *Shan hai king*, as a book which existed in the time of the Shang dynasty [B.C. 1782-1134].

The editions of the *Shan hai king* now current are in 18 books, with the commentary of 郭璞 Kuo P'ao [A.D. 276-324], the same who commented upon the *Rh ya*. Only the first five books refer to China proper, the rest is devoted to foreign countries, all fabulous. The headings of the first five books are: Mountains of the South, Mountains of the West, Mountains of the North, Mountains of the East, and Mountains of the Centre of China. Few of the names of mountains and rivers enumerated therein can be identified. Each mountain is believed to be haunted by peculiar sprites, to whom sacrifices are to be offered. The animals, plants and stones produced in these mountains are named and described. The descriptions of trees and herbaceous plants in the *Shan hai king* contain much of the miraculous. Almost every plant or fruit is reported to have, when eaten, a peculiar effect upon the functions of the mind. But there occur in this ancient work about 70 names of plants which are still in use.

The 離騷 *Li sao*, one of the poetical productions of 屈原 K'Ü YÜAN, a minister of the Kingdom of 楚 Ch'u [about

B.C. 314]. It was translated into French, in 1870 by the Marquis d'HERVEY DE ST. DENYS. About 30 names of plants appear in the *Li sao*, and many of them refer to fabulous trees and herbaceous plants.

The 種植書 *Chung chi shu*, a treatise on husbandry by 汜勝之 FAN SHENG-CHI. Second half of the first century B.C. [See *Botan. sin.*, I, p. 76].

The 方言 *Fang yen*, a comparative vocabulary of synonyms used in the various feudal states of ancient China, by 楊雄 YANG HIUNG [B.C. 53-A.D. 18]. He is also styled 楊執戟 YANG CHI-KI. [Comp. *Botan. sin.*, I, No. 106.]

The 說文 *Shuo wen* is an ancient dictionary of the Chinese language, composed by 許慎 HŪ SHEN at the close of the first century of our era. In it the matter is found arranged according to the radical part of the character, under the head of 540 radicals. It contains about 10,000 characters, all written in the Lesser Seal. The pronunciation is vaguely given, and also concise remarks on the meaning. About 760 of these characters refer to plants, but the explanations furnished with respect to the names are for the most part unsatisfactory, e.g. 草名, 木名, name of a plant, of a tree, etc., or the name is defined by a synonym.

The 廣雅 *Kuang ya*, called also 博雅 *Po ya*, a kind of vocabulary or dictionary published in the third century [see *Botan. sin.*, No. 383]. It professes to be an enlargement of the *Rh ya*. The section on plants contains nothing but names and synonyms, without any explanation.

Among the numerous Chinese works on Botany there are four which the reader will find frequently quoted in my Notes on the classical plants, and which have already been treated of at length in the first part of my *Botanicon sinicum*.

The 救荒本草 *Kiu huang pen ts'ao* [*Botan. sin.*, I, p. 54-69], a treatise on plants available for use as food in time of scarcity, by a prince of the Ming dynasty, accompanied by wood-cuts, published towards the end of the 14th century. Abbrev. *Kiu huang*.

The 本草綱目 *Pen ts'ao kang mu*, the great Chinese Herbal and Materia Medica, published in the 16th century by LI SHI-CHEN. [See *Botan. sin.*, I, p. 54-69.] Abbrev. *P*.

The 廣羣芳譜 *Kuang K'ân fang pu*, or Chinese Thesaurus of Botany, published in 1708. [See *Botan. sin.*, I, p. 70.] Abbrev. *K.K.F.P.*

The 植物名實圖考 *Chi wu ming shi t'u k'ao*, a large work on Chinese plants, illustrated by numerous wood-cuts, published in 1848. [See *Botan. sin.*, I, p. 73.] Abbrev. *Ch*.

Of dictionaries, Chinese and Chinese-English, the following, to which frequent reference is made in my paper, may be noticed:—

The 康熙字典 *K'ang Hsi tsz' tien*, a dictionary compiled and published by order of the Emperor KANG HI in 1716. Abbrev. *K.D.*

Dr. MORRISON, *Dictionary of the Chinese Language*, arranged according to the Radicals. 3 vols. 1822. Abbrev. *M.D.*

Dr. S. W. WILLIAMS, *A Syllabic Dictionary of the Chinese Language*. 1874. Abbrev. *W.D.*

EUROPEAN WORKS ON CHINESE BOTANY AND MATERIA MEDICA.

A. TATARINOV, M.D., *Catalogus Medicamentorum sinensium quæ Pekini comparanda et determinanda curavit*. 1856. [See *Botan. sin.*, I, p. 122.]

F. B. FORBES and W. B. HEMSLEY, *Index Floræ sinensis*. 1888. The work is not yet complete. It is a very important and useful publication.

Dr. A. HENRY, "Chinese Names of Plants" [*Journ. China Br. R. Asiat. Soc.*, 1887]. A list of 566 Chinese plants, collected by Dr. HENRY in the Province of Hupei, and determined at Kew, and of which the author has ascertained the Chinese names. A very valuable paper.

JAPANESE WORKS ON BOTANY, AND EUROPEAN AUTHORS ON JAPANESE PLANTS.

The *Phon zo dzu fu*, a Japanese work on Botany, with 1,795 coloured drawings, published in 1828. [See *Botan. sin.*, I, p. 100. Abbrev. *Phon zo*.]

The *So moku dzu setsu* is a similar work, published in 1856. Only 20 books of it have appeared, describing and depicting Japanese herbaceous plants; 1,215 drawings. [See *Botan. sin.*, I, p. 101.] Abbrev. *So moku*.

The *Kica wi*, a Japanese Botany, published in the last century, illustrated with 200 woodcuts. There is a French translation of it by Dr. L. SAVATIER. [See *Botan. sin.*, I, p. 99.]

Nearly all the plants figured in the above-mentioned Japanese works have been botanically determined from these drawings by Mr. A. FRANCHET, and partly also by Mr. C. MAXIMOWICZ of the Botanical Garden, St. Petersburg. On the plates we find besides the Japanese names also the Chinese names of these plants, if such exist, in Chinese characters, and to these latter my frequent quotations of the Japanese works always refer.

Some years ago the "Home Department" in Japan published a description with drawings, admirably well executed, of 100 Japanese timber trees. Japanese and Chinese names given.

E. KEMPFER's *Amenitates exoticæ*. 1712. [See *Botan. sin.*, I, p. 125.] KEMPFER describes more than 500 Japanese plants. Chinese names in Chinese characters generally added.

Dr. FR. von SIEBOLD, *Synopsis Plantarum æconomicarum universi Regni Japonici*. 1827. Chinese names of the plants in Chinese characters frequently given.

Dr. SIEBOLD's unpublished coloured drawings of Japanese plants, about 600, in the Botanical Museum of the Academy, St. Petersburg.

Dr. FR. von SIEBOLD and Dr. ZUCCARINI, *Flora japonica*. 2 vols., 1835-1870, with 150 coloured plates. [See *Botan. sin.*, I, p. 411.]

J. HOFFMANN et H. SCHULTES. *Noms indigènes d'un Choix de Plantes du Japon et de la Chine déterminés d'après les échantillons de l'herbier des Pays-Bas*. 1853. [See *Botan. sin.*, I, p. 127.] The Japanese and Chinese names are given according to the identifications made by SIEBOLD.

Dr. GEERTS. "Japanese Woods, with the Japanese and Chinese names added" [*Transactions of the Asiatic Society of Japan*, IV, 1875.]

CHAPTER I.

PLANTS MENTIONED IN THE 爾雅 *Rh ya*.

The *Rh ya*, of which an account has already been given in Part I, p. 34, is a relic of the Chou dynasty. It is the earliest Chinese attempt to compile a dictionary. The authorship is ascribed to 子夏 Tsz HIA, a disciple of CONFUCIUS. It is, however, believed that a part of the work was written by the famous Duke of Chou in the 12th century B.C. Tsz HIA was born B.C. 507 and lived to a great age, for we find him [B.C. 406] at the court of Prince Wen of Wei, to whom he gave copies of some of the classical books. [See LEGGE's *Classics*, I, Prol., p. 118.]

The *Rh ya* is a dictionary of terms used in Chinese classical and other ancient writings, the words being arranged in categories with regard to affinity of subjects. Its present shape dates from the third century of our era, when Kuo P'o, a celebrated scholar and commentator who lived A.D. 276-324, remodelled the matter and added commentaries. It is divided into 19 sections, of which seven (comprising about two thirds of the whole work) treat of natural objects—herbaceous plants, trees, insects, fishes, birds, quadrupeds and domestic animals. But the original text of the *Rh ya*, as far at least as natural objects are concerned, is generally nothing more than a list of names and synonyms. Some of the editions of the *Rh ya* are illustrated with plates, rudely executed cuts. As is stated in the preface, these drawings date from the Sung period, but they may have been based upon the woodcuts appended, as the ancient catalogues state, to Kuo P'o's edition of the *Rh ya*.²

² In 1882 a new edition of the *Rh ya*, in 12mo, was published at Shanghai. It is accompanied with the illustrations and is well printed.

The *Rh ya* is comprised in the above-noted great edition of the thirteen Classics, and appears there with the title 爾雅注疏 *Rh ya chu shu*—the *Rh ya* commented and explained. The character 注 refers to the commentary of 郭璞 Kuo P'ò. For further particulars see *Botan. sin.*, I, 35.

The character 疏, which LEGGE translates by expositions, glosses and disquisitions, denotes the explanations by 邢昺 HING PING, a scholar of the Sung dynasty, who lived A.D. 932-1010.

Kuo P'ò states in his preface that for his commentaries on the *Rh ya* he had made use of previous explanations. HING PING frequently quotes authors of the Han period who had attempted to explain this ancient dictionary. The earliest of these seems to have been 劉歆 LIU HIN, a celebrated author of the first century B.C. HING PING calls him 舍人 SHE JEN, which seems to have been his pseudonym, but *she jen*, in the time of the Han, was also a title—secretary. As the names and synonyms in the *Rh ya* run in a continued series of characters without any break, it is sometimes difficult to decide how these names are to be separated. SHE JEN was the first to indicate this division.

樊光 FAN KUANG and 李巡 LI SUN are likewise mentioned by HING PING as commentators of the *Rh ya* in the Han period. Regarding the first, we know that he was a man from 京兆 King chao and lived in the Posterior Han dynasty [A.D. 25-221].

孫炎 SUN YEN or 孫叔然 SUN SHU JAN, who also commented upon the *Rh ya*, was a contemporary of Kuo P'ò.

Both Kuo P'ò and HING PING, in their explanations, occasionally refer to two ancient authors named 謝氏 SIE and 某氏 MOU. As their cognomina are not given (they are evidently considered as well known scholars) it is impossible to say who is meant; but there is some probability that the

former is 謝曼卿 *SIE MAN-K'ING*, of the first century of our era, who commented upon the *Shi* [*LEGGE's Shi king*, Prol., p. 11], and the other may be an author of the Han alluded to in *LEGGE's Shu king*, Prol., p. 19.

HING PING quotes frequently the 本草 *Pen ts'ao*, or Herbal, commented by 陶氏 *T'AO*. This is without doubt the work mentioned in the *Sui shu*, chap. 84, on Literature, with the title 陶弘景本草經集注 in 7 *k'uan*, or chapters, or the *Pen ts'ao king*, arranged and explained by *T'AO HUNG KING*. Regarding the latter, a distinguished physician, who lived A.D. 452-536, see *Botan. sin.*, I, p. 42. The *Pen ts'ao king* is the Herbal of the Emperor *SHEN SUNG* [*ibidem*, p. 27].

Four geographical names are of frequent occurrence in *KUO P'O's* commentaries. They refer to North and Middle China, viz. :—

江東 *Kiang tung* (east of the Great river) is the same as ancient 吳 *Wu*, comprising present Che kiang and extending north and west to the Yang tsz'.

江南 *Kiang nan* (south of the Great river). This is not the *Kiang nan* of the Ming period (the present provinces of An hui and Kiang su). The *Kiang nan* of *KUO P'O's* time answers to the present province of Kiang si.

關西 *Kuan si* (west of the Pass). The famous Pass 潼關 *T'ung kuan* at the elbow of the Yellow River, is meant, and *Kuan si* answers the present province of Shen si.

關東 *Kuan tung* (east of the Pass) is Shan si.

In the subsequent notices of the plants mentioned in the *Rh ya*, the names and synonyms are given in the same order as they are enumerated in the Chinese text. Each sentence is followed by a translation of *KUO P'O's* commentary and of *HING PING's* explanatory notes. *KUO P'O* generally indicates the pronunciation of the characters in the *Rh ya*, which frequently differs from the pronunciation given in modern Chinese dictionaries and *WILLIAMS' Dictionary*.

I.—釋草 EXPLANATION OF NAMES OF HERBACEOUS PLANTS.

1.—薺 *Yā*; 山韭 *Shan kiu*, wild or mountain *Kiu* (*Allium*).

E., 55, family 韭.

韭 is also written 韭. *Li ki* also 豐. *Shroh W.* 豐. *H.* 74. 韭菜
Allium tuberosum, Reg. = *Allium odorum*, L.

A., XV, 178, *All. uliginosum*, Don & A.

H., 75, the wild species = *A. Thunbergii*, Don.

The notes inserted in the text are by the Rev. Dr. E. FABER. Lack of time has prevented a comparison of each figure in the Chinese works quoted with specimens of plants collected in China and identified at Kew, of which between three and four thousand species are in Dr. FABER'S possession. It is to be regretted that the seats of ancient Chinese civilization along the Yellow River have not yet been botanically explored. Botanical investigations in China throw light on some difficult questions relating to Chinese antiquity. Here we need merely note the striking differences between the names of plants in the *Shi king* and the corresponding ones in the *Rh ya*. We must assume that an interval of several centuries separates these two works. To the difference between the pronunciation at the period about 300 A.D. and that of the present day, Dr. BRETSCHNEIDER has alluded. It would be of great interest to learn what plants and trees were known and utilized at certain periods of Chinese history. An insight into the progress of Chinese civilization would by this means be gained.

The following abbreviations are used in the Notes :—

A. = *Journal of C. B. R. A. S.*

B. = BOWRA'S list of plants in DOOLITTLE'S *Handbook*.

C. = Customs' *List of Chinese Medicines*, 1889.

E. = Imp. Encyclopedia 古今圖書集成.

H. = Dr. A. HENRY.

P. = *P'en ts'ao* 本草, Edit. in 52 small vols.

Pr. = PARKER'S *Names of Canton Plants*.

S. = *Sin ts'ai t'u hwei* 三才圖會.

Sm. = PORTER SMITH, *Chinese Materia Medica*.

Quotations in the text are not repeated in the notes.

2.—**茗** *Ko*; **山葱** *Shan ts'ung*, mountain onion.

E., 56, family **葱** and synonym of it.

A., XV, 178, *Allium cepa*, L.

Allium fistulosum, cult. in N. Ch.

P., 26, 7. *S.*, X, 10. *Sm.* 7.

E. has five drawings, the second is *A. Vict.*

3.—**薤** *K'ing*; **山薤** *Shan hiai*, mountain *hai*. [*Comp. infra*, 63.]

E., 55, family **薤**.

King and *kung hui* [*v. infra*, 63] are given as synonyms.

W.D., 188, *Allium ascalonicum*.

S., X, 12. *P.*, 26, 15.

4.—**蒜** *Li*; **山蒜** *Shan suan*, mountain garlic.

Kuo P'o says:—The above (four) vegetables nowadays abound in the mountains. They look like the respective cultivated plants. The **茗葱** *Ko ts'ung* has a tender stalk and large (broad) leaves.

HING PING observes that the *Shuo wen* explains the characters *kiu*, *ts'ung* and *hie* by "vegetables." *Ya* (1) according to the Han text of the *Shi king*, is the same as the **鬱** in the *Shi king* [*v. infra*, 474].

The figures in the *Rh ya* representing the above-named plants (1-4) are no doubt intended for *Allia*. Regarding the cultivated *Allia*, *v. infra* 357-360.

With respect to the characters *king* (3) and *li* (4) compare also *Rh ya*, 17 and 98, where they are applied to other plants.

In the *K'iu huang*, LIX, 5, is found a good drawing of the *Allium Victorialis*, L., showing the characteristic elliptical leaves, with the Chinese name **山葱** *Shan ts'ung* or **隔葱** *Ko ts'ung* (the first character stands evidently for **茗** *ko*). The same drawing is reproduced in the *Ch.*, V, 19. [*comp. also P.*, XXVI, 13, *So moku*, VI, 29. *Allium Victorialis* is a common plant in the Peking mountains.]

E., 57, family **蒜**.

A., XV, 178, *Allium sativum*, L.

S., X, 20. *P.*, 26, 18. *Sm.*, 7.

5.—**藜** *Pi* (*po*); **山 蕒** *Shan k'in*, mountain *k'in* (now pronounced *k'i*). The drawing in the *Rh ya* represents an umbelliferous plant.

Kuo P'o :—The *Kuang ya* says that *Shan k'in* is the same as the **當歸** *Tang kui*, but the latter plant is coarser and larger, it only resembles the *k'in*.

HING PING :—The *Shuo wen* explains the character *k'in* by *ts'ao*, a plant. The mountain *k'in*, called also **白 蕒** *Pai k'in* (white *k'in*), is distinguished from the *k'in* of the plains by its white colour. [See also *infra*, 49.]

The *P.*, XIV, a. 1, identifies the *Pai k'in* and the *Shan k'in* with the *Tang kui*, an aromatic plant the root of which is much esteemed by the Chinese as a medicine. The rough drawing of the *Tang kui* in the *Ch.*, XXV, 14, seems to represent an umbelliferous plant.

So moku, V, 5, sub. **當歸** *Ligusticum acutilobum*, S. et Z., according to MAXIMOWICZ; same as *Apium ternatum* with the same Chinese name in SIEBOLD, *Syn. plant. japon.*, 246. *Herba edulis ac medicæ usus*. This umbelliferous plant is also known from Formosa [*Index Floræ sin.*, 332]; probably it occurs also in China proper and may be the *Tang kui* of the Chinese Pharmacopœia, which drug TATARINOV in his *Catal. med. sin.*, 19, supposes to be yielded by *Levisticum chinense*? [See my *Early Europ. Res. into the Flora of China*, p. 31.]

E., 132, family **當歸**.

S., II, 25, two kinds. *P.*, 13 a, 28.

The two drawings in *E.* are copies from *S.*

Sm., 20, 133, *Aralia edulis* and *Levisticum*.

C., 1250. The Sze chwan *Tang kui* is the root of an Umbellifer not yet determined; that from the North may be derived from *Ligusticum acutilobum*, S. & Z.; that imported into Shanghai from Japan is the root of *Aralia cordata*, Thbg.

6.—**椶 木** *Tuan mu* [some editions of the *Rh ya* write **椶 欖** *Kin ch'en*, **木 椶** *Mu kin*,

KUO P'Ō:—Two names for the [common] *mu kin*. It is a tree resembling the plum. Its flowers expand in the morning and fall off in the evening. They can be eaten. It is also called 口及 *Ji ki* and 王蒸 *Wang cheng*. HING PING quotes the *Shi king* and *Li ki* [c. *infra*, 542].

Mu kin is a common name for *Hibiscus syriacus*, which is tolerably well represented under the above names in the *Rhya*. *Tuan* is nowadays in Northern China a name applied to the Lime tree, *Tilia*.

E., 295, family 木槿.

As a synonym 舜 of the *Shi king*. [v. *infra*, 542.]

P., 36, 64. *C.*, 858. *A.*, XV, 125. All agree.

7.—朮 *Shu*; 山薊 *Shan ki* (mountain thistle).

KUO P'Ō:—A thistle which grows in the mountains. [See *the next*.]

8.—楊枹 *Yang fu*; 薊 *Ki*.

KUO P'Ō:—It resembles the *ki* (thistle) but is fat (succulent) and larger. It is now called 馬薊 *Mu ki* (horse's thistle).

HING PING [referring to 7 and 8]:—The name of *ki* (thistle) is applied to a plant growing on the plain. That variety which grows on the mountains is called 朮 *shu*. The *Pen ts'ao* says one name is 山薊 *Shan ki* (mountain thistle), another 山薑 *Shan kiang*, another 山連 *Shan lien*. TAO HUNG-KING [5th century] explains that there are two kinds, the 白朮 *Pai shu*, white *shu* with large hoary, not very fat (fleshy) leaves, and the 赤朮 *ch'i* (red) *shu*, with small leaves, bitter, fleshy. [Comp. *infra*, 159.]

The 朮草 *shu ts'ao* is also mentioned in the *Shan hai king*. KUO P'Ō explains the name by *shan ki* (mountain thistle).

P., XII, b, 4, *shu* or *pa shu*, and fol. 9 蒼朮 *ts'ang shu* or *ch'i shu*, medicinal plants, roots used in medicine. The *Ch.*, VII, 9, sub. *shu*, figures an *Atractylis*, a prickly-leaved thistle-like plant of the composite family, and the figures

in the *Rh ya* for 7 and 8 seem to intend the same plant. [See also *Kiu huang*, LI, 8.]

In the *So moku*, XV, 50, 白朮 is *Atractylis ovata*, Thbg., and 蒼朮 *A. lancea*, Thbg. But these species, founded upon the form of the leaves, which are very variable in shape, are now reduced to one species. *A. chinensis*, D.C., is also the same plant, which is very common in the Peking mountains. [Comp. HANBURY'S *Science Papers*, p. 255.]

The *P.* considers 7 and 8 of the *Rh ya* to refer to the same plant.

E., 102, family 朮.

Figures of eight different kinds.

S., 1, 8, three kinds. *Sm.*, 28.

C., 961, 1167, 1330.

9.—蓊 *Tsien*; 王蓊 *Wang sui* (royal besom).

KUO P'Ō:—Same as 王蓊 *wang chou* (royal besom). It resembles the 蓊 *li*. Brooms are made of it. In Kiang tung they call it 落蓊 *lo chou*. Regarding the *li* plant, *Chenopodium album*, L., v. *infra*, 446.

The *P.*, XVI, 44, identifies the *Wang sui* with the 地膚 *ti fu* or 掃帚草 *sao chou ts'ao*, or broom plant, which is the *Kochia scoparia*, Schrad., a *Chenopodiaceae* common in Northern China and used there for brooms as in Southern Europe.

Under the same Chinese names it is figured in the *Ch.*, XI, 31; in the *Kiu huang*, XLVII, 7, and in the Japanese *So moku*, IV, 41. The drawing in the *Rh ya* referring to 9 may well be intended for *Kochia*.

E., 138, family 地膚 and 114, family 懸鉤子. The figure of the latter is not a *Chenopod*, but may be a *rubus*, comp.

P., 18, 11, and *infra*, 127. *Ti fu*, see *S.*, 11, 8; *Sm.*, 128;

C., 1263, which all agree.

10.—蓊 *Lü*; 王蓊 *Wang ch'u* (royal grass).

KUO P'Ō explains:—蓊 *lū ju*, also called 鴞脚莎 *Chi kio so* (owl's-foot sedge).

HING PING, 某氏, says 萊鹿藿 *lā lu ju*. *Shi king* quoted. [*v. infra*, 461.] Drawing in the *Rh ya* a grass.

E., 107, family 莎. [*v. infra*, 97, 457.]

Shi king, 藿 [*v. infra*, 73], is given as a synonym.

11.—拜 (also written 菲 *Pai*), 藿藿 *Shang t'iao*.

KUO P'Ō:—It resembles the *li*. [*v. supra*, 9, *Chenopodium*.]

HING PING:—It resembles the *li*, but the leaves are larger.

In 莊子 CHUANG TSEZ [philosopher, 4th century, B.C.] the name of a plant *li t'iao* is found. [*v. infra*, 446.]

The above names in the *Rh ya* refer probably to a *Chenopodium*. At Peking 灰藿菜 *hui t'iao ts'ai* is *Chenopodium album*, L. [Comp. *P.*, XXVII, 28; *Ch.*, IV, 39; *Kiu huang*, LIX, 30. See also *infra*, 446.]

E., 63, family 藜.

Synonym 藜, *Shi king*. [*v. infra*, 445.]

12.—藜 *Fan*; 藜蒿 *P'ŏ hao*.

KUO P'Ō:—Same as 白蒿 *pai hao* (White *Artemisia*). [Comp. *infra*, 433.]

E., 62, 5, family 蒿, sub family 白蒿.

Fan is from the *Shi king*.

H., 108, *A. vulgaris*, L.

13.—蒿 *Hao*; 藜 *Shen* (pronounced also *kien*).

KUO P'Ō:—Now the people call it 青蒿 *ts'ing hao*. It is fragrant. They employ the plant for cauterizing. It can also be eaten.

SUN YEN (quoted by K'UNG YING-TA) says:—In 荆 *King* and 楚 *Ch'u* (pres. *Hu kuang*) the *hao* (*Artemisia*) is called *shen*. [Comp. *infra*, 431, *Artemisia*.]

E., 62, 1, family 蒿, sub. family 青蒿.

A., XV, 158, 草蒿 is the same = *A. annua*, L.

The Japanese drawing *Mao Shi*, 1, differs.

H., 109, 臭蒿. In North China 香蒿.

14.—藜 *Wei*; 牡藜 *Mou shen* (male *shen*).

KUO P'Ō:—It has no seeds.

HING PING, referring to 12-14, explains:—Various sorts of *hu* (Artemisia), variously coloured, with seeds or without seeds. Quotes the *Shi king*. [Comp. *infra*, 432.] The figures for 12-14 in the *Rh ya* may well represent various species of Artemisia.

E., 62, 15, sub. family 牡蒿.

Wei is from the *Shi king*.

H., 110, *A. japonica*, Thbg.

15.—圖彫蓬 *Ye tiao p'eng*; 鷹黍蓬 *Tsien shu p'eng*.

Kuo P'o:—A kind of *p'eng*.

HING PING:—According to the *Shuo wen*, 蓬 *p'eng* is a kind of *hao* (Artemisia). Quotes the *Shi king* and the *Yue ling*. [Comp. 436.] The figure in the *Rh ya* for 15 seems to intend an Artemisia. But the *P.*, XXIII, 15, refers the above names of the *Rh ya* to *Hydropyrum*. [*r. infra*, 350.]

E., 104, family 蓬.

Ye, tiao p'eng, tsien and shu p'eng are four synonyms. The figure represents an *Aster*.

16.—陣 *Pi*; 鼠莞 *Shu kuan* (rat's rush).

Kuo P'o:—This is a kind of *kuan* (rush, *see* 98). It has fine fibres like the 龍須 *lung sü*, and is fit for making mats. The best is found in Shu (Sz' ch'uan).

HING PING:—The *Shuo wen* says that the *kuan* is a grass of which mats can be made.

The drawing in the *Rh ya* for 16 represents a grass.

[*r. infra*, 455.]

E., 176, family 石龍薺.

Without figure. Matting grass, the best coming from Sze chuan.

17.—蒨 *King*. [Comp. *supra*, 3]; 鼠尾 *Shu wei* (rat's tail).

Kuo P'o:—It furnishes a black dye.

HING PING:—The *Pen ts'ao* says that there are two kinds of this plant, one of them with white, the other with red flowers. It is also called 長翹 *ch'ang k'iao*. T'AO HUNG-

KING reports that this plant grows abundantly in waste places. The people gather it and employ the juice in dyeing. This is the 木蘭 *mu lan*.

P., XVI, 62, sub. *shu wei ts'ao*. LI SHI CHEN states that it is also known under the name of 烏草 *eu ts'ao* (black plant), for its leaves and flowers are much used for dyeing a black colour. Spikes similar to those of the 車前 *ch'e ts'ien* (*Plantago*). There are two kinds, with white or red flowers. One author says that the flowers are purple or violet.

The plant figured in the Japanese *So moku*, I, 29-31, sub. 鼠尾草, is *Salvia japonica*, Thbg. [See also *Kwa wei*, 20.] The rough figure under the same Chinese name found in the *Kiu huang*, XLVI, 28, which is reproduced in the *Ch.*, XIV, 12, may well represent a *Salvia*.

E., 168, family 鼠尾.

The figure may be of *Salvia plebeia*.

18.—苣荬 *Si mi* (now pronounced *ming*) ; 大薺 *Ta tsi* (the great *tsi*).

K'uo P'ao:—It resembles the *tsi* (which is *Capsella bursa pastoris*. *V. infra*, 103). It has smaller leaves, and is commonly called 老薺 *lao tsi* (old *tsi*).

HING PING:—Other names for this plant, given in the *Pen ts'ao*, are 蔊苣 *nie si*, 太薺 *t'ai ts'i*, 馬辛 *ma sin*.

The *P.*, XXVII, 5, says that the *si ming*, or *ta tsi*, is nearly allied to the *tsi* (*Capsella bursa pastoris*), but larger and not so palatable.

In the Japanese *Phon zo*, XLVIII, 8-10, the Chinese name 蔊荬 is applied to *Thlaspi arvense*, L. (the *Thlaspi majus* of TABERNÆMONTANUS), also to *Lepidium sativum*, L. The plant figured under the above name in the *Ch.*, III, 14, is *Capsella b. p.*, whilst *Thlaspi arvense*, in the *Kiu huang*, LVIII, 8, as well as in the *Ch.*, V, 4, and in the *So moku*, XII, 3, bears the Chinese name 遏藍菜 *ó lan ts'ai*. The silicles of the plant are compared by the Chinese authors to

the seed-vessels of the elm. [See also SIEBOLD, *Syn. plant. æcon. jap.*, 285.] *Capsella b. p.* and *Thlaspi arvense* are common Chinese plants.

E., 60, family 荇菜 and family 薺.

The name *si mi* also occurs *E.*, 271, as a synonym of 藤.

19.—藤 *T'u*; 虎杖 *Hu chang* (tiger's cane). Comp. 150.

KUO P'ao:—It resembles the 紅草 *hung ts'ao* (*Polygonum orientale*, L. *v. infra*, 102), but is coarser and larger and is provided with small prickles. Used for dyeing a red colour.

HING PING:—TAO HUNG-KING says that according to the *Pen ts'ao* this plant grows abundantly in waste places. It has the appearance of the 大馬蓼 *ta ma liao* (great horse's *Polygonum*). Spotted stem, round leaves.

In the *P.*, XVI, 83, this plant is described as a *Polygonum*, the leaves of which resemble those of the apricot. Stem covered with spots, wherefore the plant is also called 斑杖 *pan chung*, variegated cane.

Ch., XI, 91; Bad figure. *So moku*, VII, 78, 虎杖, *Polygonum cuspidatum*, S. et Z. In China the above Chinese name seems to be applied to another species of *Polygonum*.

E., 104, gives 蓼 as a synonym of 茶 [*v. infra*, 24, 150, 209].

E., 164, family 虎杖 contains three figures of very distinct plants, reproductions of *S.*, IX, 39, but the name 蓼 does not appear. None of the figures give an idea of *P. cuspidatum*, which is also without prickles.

20.—蓋 *Meng*; 狼尾 *Lang wei* (wolf's tail).

KUO P'ao:—It resembles the 茅 *mao* (a grass, *Imperata*, *c. infra*, 459). The people use it for thatching roofs.

Comp. *infra*, 462, *Gymnothrix*.

E., 106, family 藎. [*v. infra*, 189].

The character 藎 is taken from the dictionary *Yü p'ien*. Most *Rh ja* editions have 孟, but 藎 *yu* is preferable, as in *E.* *P.*, 23, 14. *B.*, 狼尾草 *Scirpus cyperinus*, Kth. The figure in *E.* is of a graminea.

The figure in *Rh ja* has the character 瀨 for 藎.

21.—瓠 榧 *Hu si*; 瓣 *Pan*.

Kuo P'o explains, 瓠中瓣, which LEGGE [*Shi king*] translates "the section of a melon," but it seems rather to mean the pulp of a calabash, or melon. The character *pan* is thus defined in the *Shuo wen*.

HING PING quotes the *Shi king*. [*v. infra*, 384.]

The corresponding drawing in the *Rh ya* represents a calabash.

E., 47, family 瓠.

For 榧 the *Shi king* has 犀. Not the pulp is meant but the kernels, "Teeth like melon kernels." Calabash is more correct than melon, according to the figure in *E.* [*v. infra*, 384].

22.—茹 蓎 *Ju lä*; 茅 蒐 *Mao shou*.

Kuo P'o:—Now it is called 蒨 *ts'ien* and used for dyeing a dark red (絳) colour.

HING PING quotes the *Shi king*. [*v. infra*, 393.]

The plant 蒐 *shou*, mentioned in the *Shan hai king*, is, according to Kuo P'o's explanation, the same as *mao shou*.

According to LI SÜN, quoted by K'UNG YING-TA, *mao shou* is the same as 茜 *ts'ien*, *Rubia cordifolia*, L. The *Shuo wen* says that this plant grows from human blood.

E., 104, family 茜.

The figure is the same as in *S.*, II, 4, and bad.

P., 18 b, 19.

The name *ju lä* is from the *Shi king*.

One synonym, mentioned in *E.*, is 地血 Earth-blood.

23.—果 蓏 之 實. The fruit of the *kuo lo* is called 栝 樓 *Kua lou*. Figured a cucurbitaceous plant with a globular fruit.

Kuo P'o:—Nowadays the people in 齊 *Ts'i* (Northern Shan tung) call it 天 瓜 *t'ien kua* (heavenly gourd).

HING PING observes that according to LI SÜN's explanation *kuo lo* means properly not the whole fruit, but the seed only. The *Pen ts'ao king* states that the leaves of this plant

resemble those of the *kua* (gourd or melon); they are of a dark green colour. It is a trailing plant, and flowers in the 6th month; in the 7th month it produces a gourd-like fruit.

This is a *Trichosanthes*. [*v. infra*, 385.]

E. 151, family 栝樓 (see 310, family 無患子, *Sm.* 43, 221, *Bryony*, *Trichosanthes*).

Kuo lo is from the *Shi king*.

Among the synonyms is 黃瓜, but the figure is of a gourd, not of *Cucumis sativus*, *L.*

E. 170, family 白藥子. *A.*, XV., 153, *Trichosanthes palmata*, *Roxb.*, also called 天花粉. *Comp. Sm.*, 222.

24.—茶 *T'u*; 苦菜 *K'u ts'ai* (bitter vegetable).

Kuo P'o quotes the *Shi king* [*v. infra*, 365] and says that the *k'u ts'ai* is used for food.

HING PING:—In the *Pen ts'ao* it is also called 蕒 *sūan* and 游冬 *yu tung*. Its leaves resemble those of the 苦苣 *k'u kū* (*Lactuca*) but are smaller; if broken they exude a milky juice. Yellow flowers, resembling those of the *ka* or *Aster*. The plant is edible, but it has a bitter taste.

This is a *Sonchus* or a *Lactuca* [*v. infra*, 365], which accords with the drawing given in the *Rh ya*.

E. 59, family 茶, the figure = *S.*, X, 38, *Lactuca denticulata*, *Max.*

茶, 苦 and 苣 occur in the *Shi king* and are synonyms; *k'u ts'ai* *v. Li ki*. *K'u kū* is also a synonym of later date.

Another synonym is 苦蕒 *v. S.*, X, 38. *Sm.* 62. *Cichorium*. *A.*, XV, 160, *Cichorium Endivia*, *L.*

H., 189, *Lactuca squarrosa*, *Miq.*

Lactuca amurensis, *Reg.*, and sometimes at Ichang
Taraxacum officinale, *Wg.*

P., XXVII, 14.

In Japan *k'u ts'ai* is determined as *Sonchus oleraceus*, *L.*

山苦蕒 as *Lactuca Raddeana*, *Max.*

蒿苣 as *Lactuca sativa*, *L.*

山蒿苣 as *Lactuca squarrosa*, *Miq.*

K'ui ts'ai is given as a synonym in *E.*, 129, family 貝母 [*v. infra*, 75] also *E.*, 161, family 苦蕒 [*v. infra*, 144] and *E.*, 164, family 龍葵 [*v. infra*, 79, 182].

T'u is quoted from the *Shi king* as a synonym in *E.*, 103, family 茅 [*v. infra*, 48, 188 and *supra*, 20], and *E.*, 104, family 藜, from the *Chou li* [*v. supra*, 19, *infra*, 150, 209].

25.—荏 *Kia* (perhaps *ch'ui*); 藜 *Lei* (*t'ui* or *chui*, *W.D.* 926).

KUO P'IO:—This plant is now called 藜藿 *ch'ung wei*. Its leaves resemble those of the 荏 *jen* (*Perilla*). Square stem. White flowers arranged on the joints (in whorls). Another name is 益母 *i mu*, according to the *Kuang ya*.

HING PING:—LI SUN calls this plant 臭穢草 *ch'ou wei ts'ao* (stinking weed). Mentioned in the *Shi king*. [*v. infra*, 444.]

The plant in question is *Leonurus sibiricus*, L., which, however, has red, not white flowers as KUO P'IO suggests. The drawing in the *Rh ya* agrees.

E., 129, family 益母, the figure is not of *Leonurus sibiricus*, but may be of *L. macranthus*, Max., which has the same Chinese name in Manchuria.

P., 15, 24. *Sm.*, 132. *C.*, 550. *Pr.*, 231. *Kia*, *v. Shi king*.

Lycopus lucidus, Turcz., is also called *I mu* in Manchuria, this has white flowers, and occurs also in the Central and Northern Provinces of China.

26.—藜 *Ni* (read also *i*); 藜 *Shou*.

KUO P'IO:—A small herb, variegated like a ribbon (綵).

HING PING quotes the *Shi king*. [*v. infra*, 454, Ribbon grass, *Phalaris* ?.] The figure in the *Rh ya* does not agree.

W.D., 1098. *E.* not found.

27.—黍 *Tsz'*; 稷 *Tsi*.

KUO P'IO:—The people in Kiang tung now apply the term *tsz'* to the 粟 *su*. (*Su*, it seems, is here to be understood as a general name for corn, *v. infra*, 343, 347).

HING PING quotes the *Tso chuan* and the *Li ki*. [*v. infra*, 343, *Panicum miliaceum*, L.]

The corresponding figure in the *Rh ya* seems to represent *Setaria*.

E., 29, family 稷, the figure represents a *Panicum*; 黍子 is its popular name.

28.—条 *Chung*; 稷 *Shu*.

Kuo P'o:—Same as the 黏粟 (glutinous *su* or *Setaria italica*).

HING PING quotes the *Shuo wen*, where it is stated that the *shu* is a glutinous form of the *tsi* (*Panicum miliaceum*). The people in Northern China use it to ferment liquors. The figure in the *Rh ya* seems to refer to *Setaria*. [*v. infra*, 348.]

E., 25, family 稻, the figure, if intended for rice, is bad. *Shu* is mentioned as a synonym.

E., 31, family 秣, figure a *Panicum*, possibly *P. italicum*. *Chung* is placed below *shu*.

In Japan six *Panica* bear Chinese names: *P. frumentaceum*, Roxb. 秣; *P. italicum*, L. 梁; *P. Germanicum*, Trin. 粟; *P. miliaceum*, L. 稷; *P. sanguinale*, L. 馬唐; *P. viride*, L. 狗尾草.

29.—戎叔 *Jung shu* is the same as 荏菹 *Jen shu*.

Kuo P'o:—This is the plant called 胡豆 *Hu tou* (foreign bean).

HING PING:—FAN KUANG as well as SHE JEN and LI SUN all explain the above names of the *Rh ya* by *hu tou*. But they were mistaken. As *jung* is likewise a term for foreigners [western barbarians] they concluded that *jung shu* and *hu tou* are the same. CHENG HUAN and SUN YEN identified the *jung shu* correctly with the 大豆 *ta tou* or great bean. [Comp. *infra*, 355, *Shi king*.]

The *ta tou* is the *Soja hispida*, Mœnch, or soy bean. The *hu tou*, or foreign bean, is the *Faba sativa*, or common bean, one of the cultivated plants introduced from Western Asia

into China, in the second century B.C., by the famous general CHANG K'ÏEN.

Figure of the *jung shu* in the *Rh ya* a leguminous plant.

E., 36, 12, family 豆.

Both *Jung shu* and *Hu tou* are given as synonyms of 豌豆. *W.D.*, 1038, says, "probably the *lablab*?" The figure points to a *Vicia*. *Sm.*, 172, *Pisum arvense*.

E., 35, 12, family 豆, speaks of 大豆, the figure if meant for *Soja hispida*, Moench, [now *Glycine hispida*, Max.] is disfigured. 白豆, of *Parker*, 46, is distinguished in *E.*, 36, 11, as a synonym of 飯豆, comp. *P.*, 24, 1, and 24, 17. *Sm.*, 88.

In Japan *Hu tou* is *Indigofera decora*, Ldl.; *Wan tou*, *Pisum sativum*, L.; *Ta tou*, *Glycine hispida*, Max.

80.—卉 *Hui*; 草 *Ts'ao*.

Kuo P'o says it is a general name for herbaceous plants.

HING PING:—The term 百卉 *po hui* occurs in the *Shi king*. [v. *infra*, 402.]

81.—雀麥. Unknown to the Chinese commentators.

82.—蕎 *Yo* 雀麥 *Tsio mai* (bird wheat).

Kuo P'o:—Same as 燕麥 *Yen mai* (swallow wheat).

HING PING:—According to the *Pen ts'ao* it grows in waste places and forests. The plant resembles wheat but is more slender. The grain resembles the 穞麥 *kung mai* (naked barley) but is smaller.

P., XXII, 26. Figured *Ch.*, I, 31. *Kiu huang*, LII, 1. *Phon zo*, XL, 10, 11 sub. 雀麥 represents various gramineous plants.

E., 32, 20, 21, family 麥.

The figures given of *Tsio mai* and of *Yen mai* are distinct species. *Jap.*, 380, determines the first as *Bromus japonicus*, Thbg., and the other, 371, as *Brachypodium sylvaticum*, Roem. & Schult.

Sm., 157, Oat.; differs from the figures, but I received this name for *Avena fatua*, L., from Ningpo.

33.—**填烏落菜**; **兎葵藥**; **兎葵**. All unknown to the Chinese commentators.

34.—**瓠** *Yen* **菰瓜** *T'u kua*.

Kuo P'ao:—It resembles the **土瓜** *t'u kua* (earth gourd).

HING PING:—The leaves and the fruit resemble those of the *t'u kua*, which is the same as the **王瓜** *wang kua* (royal gourd) mentioned in the *Yue ling*. [r. *infra*, 386, *Thladiantha dubia*, Bge.]

Some of the ancient authors quoted identify the *yen* with the plant mentioned *Rh ya*, 152, q.v.

35.—**菊藪** *Lie chen*; **豕首** *Shi shou* (pig's head).

Kuo P'ao:—In the *Pen ts'ao* this plant is also called **豕頭** *chi lu* (pig's head) and **蟪蛄蘭** *shan chu lan*. In Kiang tang it is now commonly called *shi shou* and employed in boiling the pupa of the silkworm [to kill it].

HING PING:—A medicinal plant. In the *Pen ts'ao* it has, besides the names already mentioned, the following names: **天名精** *t'ien ming tsing*, **麥句薑** *mai k'ü kiang*, **蝦蟇藍** *hia ma lan*, **王門精** *wang men tsing*. According to the *Pie lu*, it is fragrant and known also under the name of **天蔓精** *t'ien man tsing*. The southern people call it **地菘** *ti sung* (earth cabbage). Its taste is sweet and bitter. It resembles the **藍** *lan* (indigo plant).

In the *P.*, XV, 68, this plant is noticed under the name of **天名精** *t'ien ming tsing* with the above synonyms. It is said to have small, fragrant, yellow flowers resembling the *k'ü* flowers (*Aster*, *Chrysanthemum*).

In the *So moku*, XV, 62, under the name of **天名精**, is a drawing of *Carpesium abrotanoides*, L., (*Compositae*), which agrees well with the figure given under the same Chinese name in the *Ch.*, XI, 16.

E., 174, family 天名精. The figure apparently from *S.*, II, 2, not good. *Sm.*, 12, *Amarantus tristis* is doubtful. *Carpesium abrotanoides*, *L.*, can also not be accepted exclusively, for among the 23 synonyms we find 豨薺, *S.*, IV, 34, *P.*, XV, 72, which is *Siegesbeckia orientalis*, *L.* according to *B.*, C. 395, *A.*, XV, 70 and *Jap.*, 2078. [*Comp. E.*, 167.]

36.—荊 *P'ing*; 馬帚 *Ma chou* (horse's besom).

Kuo P'o:—It resembles the 著 *shi* (*Ptarmica sibirica*), and is fit for besoms.

Hing Ping says that the plant is commonly called 著荊 *shi p'ing*. The *P.*, XV, 57, refers the above names to an *Iris*. [*v. infra*, 467.]

E., 138, family 地膚.

This is a synonym of 藟 [*supra*, 9].

37.—藟; 懷羊. Unknown to the Chinese commentators.

38.—菱 *Kiao* 牛薺 *niu k'in* (*k'i*).

Kuo P'o:—It is now called 馬薺 *ma k'in*. It has small pointed leaves resembling the leaves of the 芹 *k'in* (Celery, also *Ananthe stolonifera*). It can be eaten.

Hing Ping:—A vegetable. Seeds used in medicine. The *Pen ts'ao* says that this plant grows in marshes. It resembles the 鬼鍼 *kui chen* ("devil's needle," *BIDENS*) and also the 蕒菜 *t'ien ts'ai* (*Beta*). Flowers of a light green colour, seeds dark yellow, resembling those of the 防風子 *fang feng tsz* (*Stenocellium*, *Umbellifera*).

P., XXVI, 61, *ma k'in*. Figure in the *Ch.*, III, 44, an umbelliferous plant.

E., 65, family 芹 [*v. infra*, 116].

The synonyms given to 38 and 116 are all united, *E.*, 65.

Stenocellium is *Siler divaricatum*, *Bth.* [*v. Index Fl. S. p.* 332.]

39.—菱 *tu* 蕒 *lo* (*lu*) *fei* (*pei*).

Kuo P'o:—The character 蕒 stands for 蕒 *fu*. The *lo fei* or *lo fu* is akin to the 蕒菁 *wu tsing* (Rape), but has violet flowers and a great (long) root. Its common name is 蕒葵 *po t'u*.

HING PING:—SUN YEN calls it 紫花菘 *ts' hua sung* (cabbage with violet flowers). Another name is 溫菘 *uen sung*. Large root. Now its common name is 蘿蔔 *lo p'o*.

In the *Fung yen* the same plant is compared to the 芥 *kiai* (mustard plant) from which it is distinguished by its violet flowers. In Eastern 魯 *Lu* (Shan tung) it is also known by the name of 菘遶 *la t'a*. The commentary adds that its seeds are as large as small beans.

The plant here spoken of is the Radish, *Raphanus sativus*, L. It has violet flowers and large seeds; its common name is nowadays 蘿蔔 *lo p'o*, which appears first in Chinese books in the 9th century. In the KUANG YÜN Dictionary, which was compiled in that period, it is stated that this name was in use in the State of 秦 *Ts'in* (Shen si, Eastern Kan su). In the *T'ang Pen ts'ao*, published two centuries earlier, we first meet with another name for the radish, 萊服 *lai fu*. Under this name it is described by LI SHI-CHEN in the *P.*, XXVI, 41, and figured *Ch.*, IV, 15.

In KEMPFER's *Amæn. exot.*, 823, Japanese plants, we read 萊服 *Rai fuku*, vulgo "*Daikon*," *Raphanus major orbicularis vel radice perniagna oblonga*. With the same Chinese name the radish is figured in the *So moku*, XII, 27, 28.

As the radish is mentioned in the *Rh ya* it may be assumed that it has been cultivated in China from remote antiquity. From China its cultivation spread over the neighbouring countries, where the people generally adopted also the Chinese name of the plant. The Anamese and Malay call it *lobae*. (See LOUREIRO's *Flora cochin.*, 481; WATSON's *Native and Scient. Names of Eastern Asia. Plants*.) In Tibetan it is *la phug* (JÄSCHKE, *Tibet. Dictionary*); in Mongol and Kalnuck *lao pang*, *lo bin*, but also *turma*. The latter name is, it seems, derived from the Persian appellation *turap*, used to designate the radish.

E., 70, family 蘿蔔, four different plants are figured, among them *Raphanus sativus*, a *Crucifera* and *Daucus carota*, an *Umbellifera*. The third plate is doubtful. *H.*, 251, says that *Shan to po* is a common name for *Phytolacca acinosa*, Rox. The figure, showing a turnip-like root and large digitate leaves, must be intended for something else. There are 20 synonyms enumerated.

Pr., 88. *C.*, 688 and 751.

A., XV, 137, *Sm.*, 223.

40.—菹灌 unknown to the Chinese commentators.

41.—茵 *Siu*; 芝 *Chi*.

Kuo P'ao :—The *chi* flowers three times in one year. It is a felicitous plant.

HING PING :—The *Lun heng* [first century] says that the *chi* grows in the ground and absorbs the vapours of the earth. It is therefore considered a felicitous plant. The 禮 *Li* says, "when the ruler is charitable, then the *chi* grows."

I have not been able to find HING PING's quotation in the *Li* classics, but a similar sentence is found in the *Shui ying t'u ki* [6th century] quoted in the *K.D.* The *Shuo wen* defines 芝 by 神草, "divine herb." WILLIAMS, in his *Dictionary*, 811, makes *siu chi* to be one name, designating a gynandrous plant. The text of the *Rh ya*, however, gives *siu* as a synonym of *chi*, regarding which WILLIAMS, 53, correctly states that it is a Fungus. The corresponding figure in the *Rh ya* seems to represent a branching Fungus, the 靈芝 *ling chi*, or felicitous *chi*, which is sold in the Peking apothecary shops. It is orange coloured, of a ligneous structure and branched. The *ling chi* has been figured and described by Father CIBOT under the name of *Agaric ramifié*, in the *Mémoires conc. les Chinois*, IV, p. 500. [See also GROSIER, *la Chine*, III, 256.]

The *P.*, XXVIII, 35, identifies the *ling chi* with the 石耳 *shi rh* (stone mushroom) but gives no details about it.

Aman. esot., 832, 芝 *naba*, i.e., *Fungus campestris esculentus*. THUNBERG, *Flora japon.*, 347, identifies this with *Agaricus campestris*.

In the *Li ki* the *chi* is mentioned as an article of food. [*v. infra*, 380.]

E., 48, family 芝. One figure of a *Boletus* and 65 names.

S., VII, 6. *P.*, 28, 22. *Sm.*, 175. *Polyporus igniarius*. [*v. infra*, 161.]

42.—筍 *Sün*; 竹萌 *Chu meng* (bamboo-sprouts). Drawing in the *Rh ya*, bamboo sprouts.

KUO P'Ō explains:—The bamboo just sprouting forth.

HING PING:—SUN YEN says, bamboo-sprouts are called *sün*, and used as a vegetable. *Shi king* quoted. [*v. infra*, 273.]

43.—簕 *Tang*; 竹 *Chu* (bamboo).

KUO P'Ō:—*T'ang* is another name for the *chu* or bamboo.

HING PING:—LI SÜN says, the *t'ang* is a bamboo whose joints are one chang (10 feet) apart. SUN YEN says nearly the same. K'UNG AN KUO, in commenting upon the *Shu king*, defines *t'ang* by "large bamboo." [*v. infra*, 564.] Drawing, *Rh ya*, bamboo. For other bamboos, see 169-174.

E., 186-196, family 竹.

There are six different names from the *Rh ya*, four from the *Shu* and two others. The simple character 竹 is quoted from the *I king*.

44.—莪 *Ō*; 藎 *Lo*.

KUO P'Ō:—The people now call it 藎 *ŏ hao*, also 藎 *lin hao*.

HING PING quotes the *Shi king*. [*v. infra*, 434, *Artemisia* ?.]

E., 62, family 藎, sub-family *lin hao* [*v. supra*, 13, *infra*, 196].

The term *Ō*, *v. Shi king*; *lo*, *v. Rh ya*.

45.—苣 *Ni*; 蔞 *Ti ni*.

KUO P'Ō:—Same as 蔞 *tsi ni*.

HING PING:—T'AO HUNG-KING says, the root and the stem both resemble those of the *jen shen* (ginseng), but the leaves are smaller. The root has a sweet taste.

P., XII, a 25, *tsi ni*, synonym 杏葉沙參 *hing ye sha shen*. (*Adenophora* with apricot leaves). The figure of the *tsi ni* in the Ch. VIII, 23, which is taken from the *Kiu huang*, LIII, 6, represents an *Adenophora* or *Campanula*. So moku, III, 10, 薺 薺 *Adenophora remotiflora*, Miq. and 9 杏葉沙參 *A. latifolia*, Fish. The latter is common in the Peking mountains.

E., 143, family 薺 薺, two distinct plants are figured which have no resemblance with *Adenophora*.

E., 151, family 桔梗, with a figure probably of *Platycodon*, the name *tsi ni* occurring as a synonym.

E., 140, family 沙參 contains a good figure of *Adenophora*.

46.—絳履. Unknown to the Chinese commentators.

47.—荇 *Hing*; 接余 *Tsie yü*. 其葉荷. Its leaves are called *fu*.

KUO P'Ö:—This is a water-plant. Many plants crowded together. The leaf is round. The plant is long or short according to the depth of the water. In Kiang tung it is eaten, and called there *hing*.

HING PING:—It is called *hing ts'ai* (*hing* vegetable) and the same as the 荇 in the *Shi king*. [v. *infra*, 399, *Limnanthemum nymphaoides*, Link.]

E., 66, family 荇, with a good figure of *L. nymphaoides*.

P., 19, 21.

48.—白華 *Pai hua*⁴ (white flower); 野菅 *Yé kien* (wild kien).

KUO P'Ö:—The *kien* is a sort of 茅 *mao* (*Imperata*). It is mentioned in the *Shi king*. [v. *infra*, 460.]

E., 103, family 茅. The three figures are bad, certainly not *Imperata* but *Cyperidaceae*. 28 names are given.

⁴ The character 華 is the ancient form for 花 *hua* (flower). The latter was not introduced till the 5th or 6th century.

49.—**蔕** *Pi* (po); **白蔕** *Pai k'in* (*k'i*), white *k'in*.

Kuo P'o refers the reader to 5, *q.v.*

50.—**菲** *Fei*; **苡** *Wu*.

KUO PO:—Same as **土瓜** *t'u kua* (earth melon or earth gourd).

HING PING:—SUN YEN says it is a kind of **葛** *fu* [see the next]. Mentioned in the *Shi king*, [*v. infra*, 363.] In another place the *Rh ya* states [*v. 106*] that **菲** *fei* is the same as **蒹** *ai*, but that is a different plant.

E., 104, family **菲**, without figure.

Fei is found in the *Shi king* and *Wu* in the *Rh ya*.

Si ts'ai and *t'u kua* [*Rh ya*] are mentioned as synonyms.

The name *fei* also occurs, *E.*, 64, as a synonym of **蒹**. [*infra*, 440.]

51.—**葛** *Fu*; **蔕** *t'u*.

KUO P'o:—It has large leaves, white flowers. The edible root is like a finger, white. The figure given in the *Rh ya* resembles a rape.

HING PING quotes the *Shi king*. [*v. infra*, 442, *Calystegia* ?.] Compare also 72, where *fu* denotes another plant.

E., 111, family **葛**, with a good figure of *Calystegia heteracea*, Wall.

Li nan, *huo t'o*, *t'ung t'o mu*, *t'ung ts'ao* and 14 other names are mentioned as synonyms, which somewhat modifies *infra*, 82.

52.—**蔕** *Yung*; **委萎** *Wei wei*.

KUO P'o:—A medicinal plant. The leaves resemble those of the bamboo; they are as long as an arrow shaft, and narrow. The stem has joints. The outer skin is white, the inner green. Large root resembling a finger, 3 feet long, edible.

HING PING:—Other names of this plant, given in the *Pen ts'ao*, are **女萎** *nü wei*, **萎萎** *wei jui*.

P., XII a, 35, sub. *Wei jui*. The figure of this plant, *Ch.*, VII, 14, borrowed from the *K'iu huang*, LI, 3, represents a *Polygonatum*, which seems also to be intended in the drawing of the *Rh ya*.

So moku, VI, 3 萎蕤, *Polygonatum vulgare*, All.

E., 130, family 女萎, the figure seems to indicate a climber, with two stems from a rhizome, alternate, penni nerved, entire, acuminate, almost sessile leaves. Flowers in a simple spike from the axil of an upper leaf.

Yung and *Mei* are both quoted from the *Rh ya*.

E., 142, family 萎蕤, the figure is a *Polygonatum*, if not *Disporum pullum*, Salish.

The same passages are quoted from the *Rh ya* as in 130. There are 18 names enumerated, one is 葳蕤.

S., I, 12, has two figures of different plants, one is a *Polygonatum*. *Jap.*,⁵ 1685, *P. vulgare*, Desf.

E., 152, family 黄精, figures 11 different plants, among which are *Polygonatum*, *Disporum*, and perhaps *Galium*. *Wei jui* is one of the 21 names. *P.*, 12, 32.

Determinations are:—*C.*, 514, *Polygonatum canaliculatum*, Pursch. [*Jap.*, 1682].

A., XV, 156, *Galium tuberosum*, Lour., cult.

" *Polygonatum sibiricum*, Red, [in Peking].

B., *Vitex cannabifolia*, S. & Z.

Sm., 51, *Caragana flava*.

I have nothing to say in favour of the last two identifications.

53.—胸芋蕤. Unknown to the Chinese commentators.

54.—竹 蕤 *Chu pien*; 蓄 *Ch'u*.

Kuo P'o:—It resembles a 小 藜 small *li* (*Chenopodium*); red stem and joints; abundant by waysides, edible, kills insects.

Hing Ping:—T'AO HUNG-KING, in explaining the *Pen ts'ao*, calls this plant 蕤竹 *pien chu*. He says it is found everywhere, covering the ground. Small green flowers.

P., XVI, 85, sub. *Pien chu*. Figured *Ch.*, XI, 73, and *K'iu kuang*, *P.* XLVI, 6, rough drawings, *Polygonum*? TATARINOV, *Cat. med. sin.*, 9, refers the above name to *Polygonum*

⁵ *Jap.* = J. MATSUMURA, *Nomenclature of Japanese Plants*.

hydropiper, L. P. SMITH, *Chin. Materia Medica*, etc., 175, thinks that it is rather *Polygonum aviculare*, L. which LOUREIRO, 297, calls *rien suc*.

The plant figured in the *Phum zo*, XX, 14v. sub. 篇蓄, has not been determined.

The corresponding drawing in the *Rh ya* represents [erroneously] a pink.

E., 144, family 篇蓄.

The heading from the *Rh ya* should be 竹; 篇蓄.

The figure seems to indicate a *Polygonum*, may be *P. aviculare*, L. [*Jap.*, 1686]. The figure in *S.*, IV, 32, is almost the same.

A., XV, 170, gives *P. aviculare* and *P. plebejum*, Br. All these and similar species are probably meant.

[*E.*, 162, family 射干.

The synonym 扁竹 (without 廿) occurs; this is *Belemcanda chinensis*, Lam., *H.* 370, *C.*, 1020, and has nothing to do with the classics.]

55.—*葳* *Chen*; 寒漿 *Han tsiang* (cooling juice).

Kuo P'ao:—This plant is now called 酸漿草 *suan tsiang ts'ao* (acid juice). In Kiang tung they call it 苦葳 *k'u chen* (bitter *chen*).

HING PING:—The *Pen ts'ao* terms it 醋漿 *ts'u tsiang* (vinegar juice) TAO HUNG-KING states that it is a common plant near dwelling-places. The leaves are eaten. The fruit is a capsule (bladder) within which is a berry of a yellowish red colour, resembling a plum.

P., XVI, 33, sub. *suan tsiang*. LI SHI-CHEN states that the red fruit is enclosed within a five-angled bladder resembling a lantern. This agrees well with the fruit of the winter cherry, *Physalis Alkekengi*, L., a common plant in Northern China, called also *teng lung ts'ao* (lantern plant) and *hung ku niang* (red girl). This plant is well figured under the above Chinese name *suan tsiang* in the *Ch.*, XI, 48, and in the *So moku*, III, 43,

E., 160, family 酸漿.

The figure is a good drawing of *Physalis Alkekengi*, L.

S., II, 40. *A*, XV, 164.

56.—蘇眉 *Kie kou (hou)*. 葵堯 *Kāe kuang*.

KUO P'ò:—This is the 英明 *Kāe ming*. Leaves pointed, yellow; red flowers. The fruit resembles that of the 山茱萸 *Shan chu yū (Cornus)*. It is also called 陵 *Ling*. In Kuan si (present Shen si) it has the above name *Kie kou*.

HING PING:—TAO HUNG-KING, in explaining the *Pen ts'ao*, states that the plant in question has leaves resembling those of the 莊豆 *Kiang tou (Cassia?)*. The seeds resemble a horse's hoof, whence the name 馬蹄英明 *Ma ti k'ue ming*. The *Shao wen* calls it 陵 *Ling*, the *Kuang ya* 羊躑躅 *Yang chi chu*. In 楚 *Ch'u (Hu kuang)* they call it 菱 *K'i*, in 秦 *Ts'in* it is called *Kie kou*.

P., XVI, 41, *Kāe ming*. LI SHI-CHEN states that there are two kinds of *Kāe ming*, one of them is called *Ma ti k'ue ming* (horse's hoof *Kāe ming*). Its stem is 3 or 4 feet high, the leaves (leaflets) are larger than those of the *mu su (Medicago sativa)*; they are narrow at the base and enlarge towards the summit. In daytime they are open, at night they all fold together, two and two. In autumn the flowers, with five petals of a pale yellow, appear. They are followed by long pods resembling those of the 紅豆 *Kiang tou (Dolichos sinensis)*. They contain many dark green seeds resembling a horse's hoof. The other kind is called 莊芒英明 *Kiang mang k'ue ming*. It resembles the former, but the leaves are pointed, resemble those of *Sophora japonica* and do not fold together at night. Dark yellow flowers, small pods like a little finger, small seeds resembling those of *Hibiscus abelmoschus*.

The name of the last-described is more commonly written 望江南 *Wang kuang nan*. *Kiu huang*, LIII, 22, and *Ch.*, XI, 30. The plant figured there is a *Cassia*. At

Peking *Wang kiang nan* is the *Cassia Sophora*, L. The plants described by LI SHI-CHEN under the above names are without doubt two species of *Cassia*, but what KUO P'ao states regarding the *K'ue ming* does not agree.

In the *So moku*, VIII, 2, 决明 is *Cassia Tora*, L., and 3, 望江南 *Cassia occidentalis*, L.

E., 131, family 决明.

Two different figures, which are taken from *S.*, II, 3, where three can be seen, one of them may be *Cassia Tora*, L., *Sm.*, 54; *C.*, 269 = 1341, *Cassia Sophora*, also *A.*, XV, 148.

The other figure cannot be meant for a *leguminosa*.

E., 179, family 羊躑躅 cannot be the same, its synonym is 闹羊花, determined as *Datura alba*, N. & E., by *Pr.*; *C.*, 894, (302); as *Datura Metel*, L., by *A.*, XV, 164; as *Hyoscyamus niger*, by *Sm.*, 29, 115, (also *Andromeda*, 84). The figure is neither one nor the other, nor can it mean a *leguminosa*. As 黄杜鹃, yellow *Azalea* is among the synonyms, it may mean *Rhododendron chinense*.

E., 78, 15, has a good figure of 望江南, a *Cassia*.

Jap., 2060, gives this Chinese name to *Senecio japonicus*, Schultz.

57.—菰黄 *Wu i*; 菰藟 *Sha ts'iang*.

KUO P'ao:—It is also called 白蕢 *Pai k'ui* (white *Blitum*, see 107).

HING PING refers to the 蕢黄 *Wu i*, mentioned in the *Pen ts'ao*, about which see 263.

58.—蔕 *Tie*; 蔕 *Cho*; 其紹蔕

According to SHE JEN, SUN YEN and KUO P'ao, a 小瓜, small gourd or melon, which is also figured in the corresponding plate.

V. infra, 383, *Shi king*.

59.—芎 *Sho*; 臭苳 *Fu ts'z'*.

KUO P'ao:—This plant grows in low fields, resembles the 龍須 *Lung sū* (a rush, *v. infra*, 455), but is more slender.

Its root resembles the end of a finger, is of a black colour, and edible.

HING PING :—The people boil it.

In the *P.*, XXXIII, 29, the above names are identified with the 烏芋 *Wu yū* (black taro) which is also called 地栗 *Ti li* (ground chestnut) and 蒻薹 *Pi ts'i*. The latter name at Peking is applied to the black tubers of the *Scirpus tuberosus*, Roxb., (*Eleocharis tuberosa*) which is extensively cultivated all over China. Only the covering of the tuber is black; it is white and mealy inside. A good drawing of the plant *Ch.*, XXXI, 39.

Amor., exot., 827, 蒻薹 *Bossai* vulgo *Quai*. *Juncus aquaticus* radice deusa fibrosa, sobole tuberosa, crebro geniculata, castaneaeum facie, eduli. Figured *Phon zo*, LXXVI, 6, 7. SIEBOLD, *Syn. plant. æcon. jap.*, 49, 烏芋 *Kurokuwai*, *Juncus articulatus*, Thbg. (THUNBERG has *Scirpus articulatus*). *Radix edulis*.

E., 114, family 蒻薹. The figure represents *Scirpus tuberosus*. *A.*, XV, 10; *Sm.*, 92. *Jap.*, 2028, *Scirpus plantagineus*, Retz.

60.—藨 *Lei*; 藨薹 *Tiung t'ung*.

Kuo P'o :—It resembles the 蒲 *P'u* (rush) but is smaller.

HING PING :—It is fit for making shoes and twisting cords.

61.—蓀 *T'i*; 英 *Tie*.

Kuo P'o :—It resembles the 稗 *Pai*. It is a weed which covers the ground.

V. infra, 352. *Graminea*, *Paucum*.

62.—鉤 *Kou*; 葵 *Yao*. [Comp. 208.]

Kuo P'o :—It is [the stem, it seems] as thick as the middle finger, empty inside. At the end of the stem is a head [of flowers] like that of the 薊 *ki* (thistle). The young plant can be eaten.

The *Shuo wen* says the *Yao* is a plant with a bitter taste. In Kiang nan they eat it to remove flatulence.

According to *P.*, XV, 47, this is the same as the 苦蕒 *K'u* or bitter *Yao*, first mentioned in the *Pie lu*, and represented in *Ch.*, XIV, 6, as a spiny plant (only leaves).

So moku, XV, 41, 苦蕒 *Cnicus japonicus*, Maxim. *Index Floræ sin.*, p. 461.

E., 161, family 苦蕒. The figure indicates a *Cnicus*. *Jap.*, 640, *Cn. ovalifolius*, Fr. & S.; 635, *Cn. japon.* is 小薊.

E., 45, family 瓜 includes a *kou* of the *Rh ya*, which *v. infra*, 152.

63.—薊 *Hiai*; 鴻薊 *Hung hui*. [Comp. also 3.]

KUO P'Ō:—This is a vegetable.

HING PING:—It resembles the 韭菜 *Kiu ts'ai* (*Allium odorum*). In the *Pen ts'ao* it is also termed 菜芝 *Ts'ai chi*.

V. infra, 360, *Allium*.

64.—蘇 *Su*; 桂荏 *Kui jen*.

KUO P'Ō:—The *Su* is a sort of *Jen* (oleiferous plant).

HING PING:—T'AO HUNG-KING, in explaining the *Pen ts'ao*, says, the leaves of this plant are of a purple colour underneath and very fragrant. There is a variety of it with the leaves not purple-coloured and not fragrant. There is also a wild species growing in marshes and called 水蘇 *Shui su* (water *su*) or 雞蘇 *Ki su* (cock's *su*).

P., XIVb, 94, 蘇 *Su*. LI SHI-CHEN distinguishes two sorts of *Su*. One of them, called 紫蘇 *Tsz' su* (purple *su*) has a square stem; roundish-pointed, toothed leaves, purple on both sides when the plant grows in rich soil, purple only underneath when it grows in poor soil. It is very fragrant. Young leaves eaten as a vegetable, also pickled with plums. They are also used to prepare a beverage. The other kind, with its leaves white on both sides, not

fragrant, is called 白蘇 *Pai su* (white *su*) or 荏 *Jen*. An oil is expressed from its seeds. [But it seems the *Tsz' su* also produces an oil].

Two distinct labiate plants are figured under the above names in the *Ch.*, XXV, 25, the *Jen* or *Pai su*, the oil yielding, and 27, 29, the *Su* or *Tsz' su* or purple coloured.

Amæn. exot., 911, 荏 *dsin*, vulgo *je et fakkuso*. *Ocimum* majori affinis; ex ejus semine Japonese celebre oleum *jeno abra* conficiunt.

Ibidem 蘇 *sso*, usitate *naraje et sjuko gusa*. An *Ocimum* majus, Matth. et Tabern.?

So moku, XI, 26, 荏 *Perilla ocimoides*, L. SIEBOLD, *Icon. plant. jap. inedit*, VI, same identification. SIEBOLD, *Syn. plant. æcon.*, 190. *Acynos yeyoma* 荏 E seminibus exprimitur oleum, quo celebrata japonica pluvialia sunt obducta.

Phon zo, XII, 12, 13, 蘇 and *So moku*, XI, 25, 紫蘇, *Perilla arguta*, Bth. SIEBOLD, *Plant. japon. æcon.*, 189. *Acynos siso*, 紫蘇 *Ocimum crispum*, Thbg., variat foliis purpurascensibus.

Thus in Japan the latter Chinese name, *Tsz' su* (purple *su*) is applied both to *Perilla arguta* and *Ocimum crispum*. I may observe that THUNBERG is wrong in identifying [*Flora jap.*, 248] his *O. crispum* with KÆMPFER's *siso* or *mura-sakki* [*Amæn. exot.*, 781], for this latter is *Lithospermum erythrorhizon*, S. & Z. [Comp. *infra*, 142].

According to LOUREIRO, *Flora coch.*, 446, the *Tsu su* (*Tsz' su*) in Southern China, is *Melissa cretica*, L. He says: "tota planta rubrofusca, mixto odore Pulegii, et cimicium imbuta. Foliis recentibus vescuntur indigenæ in acetariis." This is probably not *Melissa cretica*. LOUREIRO's *Dentidia nankinensis*, sin. *kiam nan tsu su* (*Tsz' su* of Kiang nan), *l.c.*, 448, odore et colore *Melisse creticæ*, is, according to BENTHAM, *Flora hongk.*, 276, *Perilla ocimoides*, var. *crispa*.

The labiate plant, cultivated at Peking under the name of *Su* (vulgo *su tsz'*) for the oil expressed from its seeds, is *Perilla ocimoides*. This plant has an unpleasant, powerful smell.

According to HENRY, *Chinese Names of Plants*, 395 and 512, *P. ocimoides* is much cultivated for its oil in Hu pei, and is called there *Su ma* (*su* hemp). A variety with red flowers is *Tsz' su*.

The 水蘇 *Shui su*, mentioned by a commentator on the *Rh ya*, is likewise a Labiate, but I am not prepared to say to what genus it belongs. See *P.*, XIVb, 97. *Ch.*, XXV, 14. *Phon zo*, XII, 14.

E., 58, family 蘇, contains 4 figures and 25 names.

The first figure, 紫蘇, is *Perilla ocimoides*, L., in *Jap.*, 1588, *P. arguta*, Bth. The figure for 水蘇, if meant for a Labiate, is not a success; it may be a *Scrophularinea* or an *Acanthacea*. The figure of 荏 may indicate another *Perilla*. In *Jap.*, 1589, *P. ocimoides*.

C., 1199, 1202, 1203. *S.*, X, 15.

65.—薺 *Se*; 虞蓼 *Yü liao*.

KUO P'Ö:—Same as the 澤蓼 *Tse liao* (Marsh *Polygonum*).

HING PING refers to the *Shi king* 茶蓼 *T'u liao* [*v. infra*, 365] which MAO explains by 水草 *Shui ts'ao* (water-plant).

The drawing in the *Rh ya* may well be intended for a *Polygonum*.

P., XVI, 78, 水蓼 *Shui liao* (Water *Polygonum*), where the above names of the *Rh ya* are given as synonyms. *Ch.*, XIV, 19, *Shui liao*, *Polygonum*.

LOUREIRO, *Fl. cochín.*, 295, *kuei liao*, the Chinese name for *Polygonum hydropiper*, L. [*v. infra*, 366.]

According to HOFFM. & SCHULTES, 451, 水蓼 in Japan is *Polygonum perfoliatum*. Same Chinese name, *So moku*, VII, 62, and *Phon zo*, XX, 3, *Polygonum* figured, not determined.

E., 58, family 蓼. Of the two figures the first called 大蓼 is not a *Polygon*, but probably *Psilopeganum sinense*, Hemsl., (*Rutaceae*), 21 names are given, among them also 紅, etc., from the *Rh* ya, [*v. infra*, 102]. The second figure may represent *P. orientale*.

Jap., 1705, *P. perfoliatum* 杠板歸; 1695, *P. flaccidum*, 水蓼.
66.—蓼蓐. Unknown to the Chinese commentators.

67.—蓼 *Men*; 赤苗 *Ch'i miao* (red blade).

Kuo P'o:—It is nowadays called 赤梁粟 *Ch'i liang su* (red *Setaria italica*).

HING PING:—The above character *men* is the same as 糜 in the *Shi king*. [*v. infra*, 345, *Setaria italica*.]

E., 30, family 黍, both the red and white (68) varieties are *Panicum miliaceum*. [*v. infra*, 341-343.]

68.—芭 *K'i*; 白苗 *Pai miao* (white blade).

Kuo P'o:—It is now called 白梁粟 *Pai liang su* (white *Setaria italica*).

V. infra, 346, *Setaria italica*.

E., 59, family 茶, *Lactuca*; *K'i* is a synonym.

E., 137, family 地黃, as a synonym = *Rehmannia*.

E., 42, family 薏苡 as a synonym = *Coix lacryma*.

69.—秬 *Ka*; 黑黍 *Hei shu* (black millet).

Kuo P'o quotes the *Shi king*.

HING PING:—This is the great black millet used for making the sacrificial spirit 鬯酒.

V. infra, 342, *Panicum miliaceum*.

70.—秠 *Fou* (*p'ei*). 一稊二米 (two seeds within one glume).

Kuo P'o:—This is a kind of *hei shu* or black millet distinguished from the foregoing (by having two seeds in one glume). In the reign of the Han Emperor Ho TI (A.D. 89-106), in the district of 任城 Jen ch'eng (now Yen chou fu, in Shan tung), such a black double-kernelled millet was reaped; more than 3 hu of it were gathered.

HING PING:—This double-kernelled millet was used in olden time for making the spirits offered in the ancestral worship of princes, it being regarded as an unusual thing.

V. infra, 342.

71.—稌 *T'u*; 稻 *Tao*.

KUO P'ò:—Nowadays in 沛國 *P'ei kuo* (northern part of present An hui Province) the people use the term 稌 (to designate Rice).

HING PING quotes the *Shi king*, *Li ki*, *Shuo wen* and the *Ts'ü lin* [3rd century]. The latter states 粳 *No* is the name for the 黏稻 *Nien tao* (glutinous rice) and 秈 *Keng* is the [common] rice without the glutinous quality. In the *Pen ts'ao* these two kinds are called 粳米 *keng mi* and 稻米 *tao mi*.

The *Rh ya* makes *t'u* and *tao* to be the same thing, as does also the *Shuo wen*. But *tao* is nowadays a general term for rice, whilst *t'u*, according to the dictionary *Tsi yüan* [11th century] is the same as *no* or glutinous rice. [*v. infra*, 337, 338, about Rice mentioned in the Classics.] The terms *tao* and *t'u* occur also in the *Shan hai king*, 稻米 *tao mi* and 稌米 *t'u mi*, used for the sacrifices offered to the mountain spirits.

E., 25, family 稻.

P., 22, 29. *Sm.*, 185.

72.—藹 *Fu*; 葦茅 *K'üang mao*. [Comp. also 51.]

KUO P'ò:—That with red flowers is called *k'üang*; another kind with yellow or white flowers is called 菱荇 *Ling t'iao*.

The name *ling t'iao* is not found in Chinese botanical works. The character *ling* is a name for the water caltrop, *Trapa*, and this plant is represented in the corresponding figure of the *Rh ya*. This identification is no doubt erroneous. *K'üang mao* is a magic herb mentioned in the *Li sao*. [*v. infra*, 416.]

See note to 51. *Calyptegia heteracea*.

73.—**臺** *T'ai*; **夫須** *Fu sū* (poor man's need).

Kuo P'o:—CHENG HÜAN, in commenting upon the *Shi king*, says that this plant (a sedge) can be made into rain-cloaks and hats.

V. infra, 457, *Scirpus*.

E., 107, family **莎** *Cyperus*. [*v. infra*, 97].

74.—**藨 藨**. Unknown to the Chinese commentators.75.—**閭** *Meng*; **貝母** *Pei mu* (mother-of-cowry shell).

Kuo P'o:—The roots are round like small cowry shells and white. The leaves and flowers resemble those of the **韭** *Kiu* (*Allium odorum*).

HING PING:—This is a medicinal plant. In the *Shi king* its name is written **臺** *Meng*. The *Pen ts'ao* calls it **空草** *K'ung ts'ao*. T'AO HUNG-KING states that it grows by waysides. The root looks like cowries, whence the name.

V. infra, 423, *Fritillaria*.

E., 129, family **貝母**, the three figures are copies from *S.*, II, 28, none of them resembling *Fritillaria*.

76.—**葳** *K'iao*; **批 坏** *P'i fou*.

Kuo P'o:—It is now called **荆 葵** *K'ing k'ui*, for it resembles the *k'ui* (*Althaea*, *Malva*). Violet flowers. 謝氏 says that it is a small plant with not many leaves but an abundance of flowers.

V. infra, 369, *Malva*.

E., 85, family **葵**, with 39 names. Of 7 figures, only 3 belong to *Malvaceæ*.

Hsi and *t'u k'ui* [*v. infra*, 115] are synonyms, also *kien* and *jung k'ui* [*v. infra*, 136], and *Chung k'ui* and *fan lu* [*v. infra*, 148, 368].

77.—**艾** *Ai*; **冰 臺** *Ping t'ai*.

Kuo P'o:—It is now called **艾 蒿** *Ai hao*.

This is *Artemisia vulgaris*, L. [*v. infra*, 429.]

78.—**韮** *Tien*; **亭歷** *T'ing li*.

KUO P'Ö:—Leaves and fruit resemble those of the 芥 *Kie* (Mustard). Another name is 狗薺 *Kou tsi*.

HING PING:—The *Kuang ya* calls it *kou tsi*. In the *Pen ts'ao* there are the names 丁歷 *Ting li*; 太室 *T'ai shi*; 大適 *Ta ti*. T'AO HUNG-KING says, the plant is found by waysides. Seeds small, yellow, bitter.

P., XVI, 51, and Ch., XI, 63, describe and figure under *ting li*, a cruciferous plant. TATARINOV, *Catal. med. sin.*, 56, *Ting li*, *Semina Sisymbrii*. Four species of *Sisymbrium*, including our common *S. Sophia*, are known from Northern China [See *Index Floræ sin.*, I, 45]. LOUREIRO, *Fl. cochin.*, 479, gives *Tin li* as the Chinese name for *Lepidium petraeum*, but according to the *Index Floræ sin.*, 41, LOUREIRO's plant is *Nasturtium palustre*, D.C.

In Japan the above Chinese name, *Ting li*, is applied to several cruciferous plants. *Phon zo*, XIX, 2, 葶藶 *Nasturtium palustre*, D.C., also *Arabis perfoliata*, Lam. In HOFFM. & SCH., 219, same Chinese name, *Draba nemoralis*, L. *So moku*, XII, 4, the same plant 苦亭歷 (bitter *ting li*).

E., 141, family 葶藶, with three figures of *Cruciferae*.

蔊草 of the *Li ki* is also referred to this. *Jap.*, 825, *Draba nem.*

79.—**符** *Fu*; **鬼目** *Kui mu* (devil's eye).

KUO P'Ö:—There is now in Kiang tung a plant *kui mu*. Its stem resembles that of the 葛 *Ko* (*Pachyrhizus*); its leaves are orbicular and covered with hairs, the fruit is shaped like an ear-ring. It is of a reddish colour. The plant grows in a bushy manner.

The P., XVIII, b, 31, identifies the *kui mu* of the *Rh ya* with the 白英 *Pai ying*, a climbing plant with 5 lobed tomentose leaves; fruit globular, resembling that of the 龍葵 *Lung k'ui* (*Solanum nigrum*), but of a dark red colour. The figure of the *pai ying* in Ch., XXII, 18, represents a *Solanum* with lobed leaves.

So moku, III, 52, 白英 *Solanum dulcamara*, L.

E., 158, family 白英. The figure indicates a twiner, different from the figure in *Rh ya*. *Jap.*, 2100, *S. dul.*

Fu is also synonym of 苳 or *Limnanthemum*, *E.*, 66.

80.—薺; 庚草. Unknown to the Chinese commentators.

81.—薺 *Ao*; 薺薺 *Sao lā*.

KUO P'Ō:—It is now called 薺薺 *Fan lā*, also 雞腸草 *Ki ch'ang ts'ao* (chicken bowels herb).

HING PING:—The *Pen ts'ao* says, the *fan lā* is of a bitter taste. T'AO HUNG-KING states that the people use it as a vegetable for soup.

P., XXVII, 6, *fan lā*, a creeping plant. The drawing in *Ch.*, IV, 7, *s.n.*, agrees with the figure; *So moku*, VIII, 65, under 薺薺, which is *Stellaria neglecta*, Weihe. But the plant 雞腸草, is kept apart in *P.*, XXVII, 7, in *Ch.*, IV, 8, and in the Japanese botanical works. In the *So moku* it is *Eritrichium pedunculare*, A.D.C.

E., 144, family 薺薺, the figure may be of a *Stellaria*.

82.—離南 *Li nan*; 活莖 *Huo t'ō*. [Comp. also 143.]

In the *Shan hai king* this plant is repeatedly mentioned under the name of 冠脫 *K'ou t'ō*. KUO P'Ō explains that it is an herbaceous plant of the southern provinces, which grows to the height of more than ten feet, and has large leaves resembling those of the 荷 *Hō* (Lotus flower). The pith of the stem is very white. The people of 零 *Ling* and 桂 *Kui* [Hu nan] cultivate it. It is called 灌 *Kuan*, and grows like a tree.

In *P.*, XVIIIb, 28, the above names, found in the *Rh ya* and *Shan hai king*, are referred to the 通脫木 *T'ung t'ō mu*. LI SHI-CHEN explains this name, saying that the pith is obtained by stripping off the rind. *T'ung*=to go through; *t'ō*=to peel off. CH'EN TS'ANG-K'Ū [first half of the 8th century] states that the *t'ung t'ō* tree grows on the

sides of the mountains. The leaves resemble those of the 蓖麻 *Pi ma* (*Ricinus communis*). The stem contains a beautiful light, white pith, which is used by women for making fancy articles. Its common name is 通草 *T'ung ts'ao*. Under this latter name *Ch.*, VIII, 64, gives a good drawing of the *Aralia* (*Fatsia*) *papyrifera*, (Hooker) the pith of which, as is now well known, yields the so-called "rice-paper." This plant was long known as growing plentifully in Formosa. [Comp. *Kew Journ. Bot.*, IV (1852), p. 53 *u.* 1, 2.] Recently Dr. A. HENRY discovered it also in *Hu pei* [*Chinese Names of Plants*, 488, *t'ung ts'ao*; *Ind. Florae sin.*, 341]. E. H. PARKER [*China Rec.*, IX, 327] reports that the rice-paper plant, *t'ung ts'ao*, is produced in Sung k'an (Sz' ch'nan, near the Kweichow frontier). The pith paper in China is chiefly used for manufacturing artificial flowers for women's hair. Besides this, the Chinese painters execute brilliant paintings on it. *Aralia papyrifera* is an herbaceous plant, but it has sometimes a tree-like appearance.

通草 *Akebia quinata*, Deen., and 通脫木 *Fatsia horrida*, (Smith), are found in Japan. [See *Phon so*, XXX, 8, 9, and 10, 11.]

E., 134, family 旄脫, with two figures, one for *Fatsia papyrifera*, the other a branched prickly plant.

The names given, *infra* 143, are included here.

E., 111, family 葛 [*v. supra*, 51] mentions *li nan* of the *Rh. yu* as a synonym of *Calystegia*.

83.—龍天蒿; 須葑薺. Unknown to the Chinese commentators. [Comp. *infra*, 105 and 361.]

84.—莠 *P'ang*; 蘿藦 *Yin jen*.

Kuo P'o:—It resembles the 蘇 *Su* (*Perilla*). The plant is covered with hairs. In Kiang tung it is now called *yin jen*. The people gather and pickle it; they boil it also for food.

This plant is not noticed in the *Pen ts'ao kang mn.*

E., 143, family 薺 芭 [*v. supra*, 45], *yin jen* occurs as a synonym.

85.—薺 *Yu*; 薺子 *Man yā*.

Kuo P'ao:—This is a water-plant, also called 軒子 *Hien yā*. In Kiang tung they call it *yu*.

P., XVI, 85, and *Ch.*, XIV, 33, consider the *yu* plant of the *Rh yu* to be the same as the 薺 *yu*, which ancient authors describe as a marsh or water-plant like silk floss; long leaves which are eaten by horses; stem with joints. It has a fetid smell. WILLIAMS, *Dictionary*, 1113, thinks that it may be a *Potamogeton*.

The *Shuo wen* keeps the two characters *yu* distinct. According to this dictionary 薺 is another term for 漚 (to strain spirits) and 薺 (a plant growing by the edge of the water).

The stinking plant *yu* is mentioned in the *Tso chuan*, 141, [B.C. 655], in an oracular passage, saying:—there is a fragrant herb and a noisome one, and ten years hence the noisomeness will continue (一薰一蕕十年尚猶有臭).

SIEBOLD, *Icon. jap., ined.*, VI, 薺 *Phænoides japonica* (*Clerodendron*). [See also *Phon zo*, XX, 13.]

E., 108, family 薺. The figure seems to indicate a *Potamogeton*.

Jap., 627, *Clerodendron divaricatum*, S. & Z., may caution us not to accept Japanese identifications without guarantee from Chinese sources.

86.—薺 *Lu*; 薺 *Ts'u*.

Kuo P'ao:—A plant used for making shoes.

87.—柱夫 *Chu fu*; 搖車 *Yao ch'e*.

Kuo P'ao:—A trailing plant with small leaves, violet flowers, edible. The people now call it 翹搖車 *K'iao yao ch'e*.

V. infra, 448, *Vicia hirsuta*.

E., 72, family 翅搖, with figure of a *Vicia*.

The synonym *tiao*, from the *Shi king* [*v. infra*, 448]. That this term is not mentioned in the *Rh ya*, while two others are, is a proof that the present text of the *Shi king* is not what it was about 300 B.C. There are many more such cases, all specially inexplicable by the commentators.

88.—出隧 *Ch'u sui*; 躑蔬 *Kū shu*.

KUO P'IO:—It resembles the 土菌 *T'u kūn* (a mushroom) and is produced within the 菰草 *Ku tsao* [*Hydrophyrum latifolium*. *V. infra*, 350]. The people of Kiang tung eat it. It is sweet and mucilaginous.

The corresponding figure of the *Rh ya* represents a mushroom.

E., 40, family 菰, makes the two terms simply synonyms. It is possible that the young sprouts of *Hydrophyrum* were considered to have the quality of mushrooms. Whether a peculiar mushroom grows among *H's* should be ascertained from a professional botanist.

The two terms are from the *Rh ya*. 菰 is mentioned in the *Li ki*.

P., 19, 17; 23, 15. 菰子 is mentioned *E.*, 52, among the 菌 or mushrooms.

89.—藟蒿 *K'in (k'i) ch'i*; 藟蕪 *Mi ieu*.

KUO P'IO:—This is a fragrant herb with small leaves, resembling the 葵 *Wei*. HUAI NAN-TSZ' [2nd century B.C.] says that it resembles the 蛇牀 *She ch'uang* [an umbelliferous plant, *Selinum* or *Cnidium*]. The *mi ieu* is mentioned in the *Shan hai king*.

HING PING:—Another name is 芎藭苗 *Kung k'ing miao*. In the *Pen ts'ao* it is also called 薇蕪 *Wei ieu* and 江離 *Kiang li*. T'AO HUNG-KING says that the plant resembles the *she ch'uang* [*v. supra*].

The fragrant plant in question is mentioned in the *Li sao*. [*v. infra*, 411, 412, *ch'i* and *kiang li*.]

E., 143, family 藟蕪. Both dissyllables are from the *Rh ya*.

The figure represents an Umbelliferous plant, but without flower or fruit.

90.—茨 *Ts'z'z'*; 蒺藜 *Tsi li*.

Kuo P'o:—This plant creeps on the ground. It has small leaves. The fruit is provided with three prickly horns.

This is the *Tribulus terrestris*, L., and this plant may also be recognised in the corresponding drawing of the *Rh ya*.

[Comp. *infra*, 427].

E., 141, family 蒺藜, with a good figure of *Tribulus terr.*

C., 52. *S.* I, 38. *P.*, XVI, 87. *Sm.*, 221.

91.—蕎麥 *Ki ju (na)*; 竊衣 *Ts'ie i* [-stealing clothes].

Kuo P'o:—It resembles the 芹 *Kin* [*Eranthe stolonifera*, an umbelliferous plant] and is edible. Seeds hairy, as large as a wheat-grain, two together, opposite; they stick to people's clothes.

HING PING:—Popular name of the plant 鬼麥 *Kui mai* (devil's wheat). Not mentioned in the *Pen ts'ao kang mu*.

Jap., 539, *Camalis jap.*, Houtt., 竊衣 (= *Torilis Anthriscus*, Gmel., *Index Fl. S.*, 337).

92.—鼈 蛄 *Muo*; 顛 藏 *Tien ki*.

Kuo P'o:—A creeping plant with small leaves and prickles. Another name is 商 薺 *Shang ki*. The *Kuang ya* calls it 女 木 *Nü mu*.

Not found in the *Pen ts'ao kang mu*.

E., 173, family 天門冬, *Asparagus*. Several wild species grow in China.

The two names, *infra*, 108, are synonyms.

93.—蘿 *Kuan*; 芫 蘭 *Huan lan*.

Kuo P'o:—A creeping plant, the stalks of which, when broken, exude a milky juice; edible.

[*V. infra*, 468, *Metaplexis Stauntonii*].

E., 141, family 芫 蘭, with a good figure.

In this case *kuan*, the term of the *Rh ya*, stands first, and *huan lan*, of the *Shi king*, below it.

94.—薺 *T'ün*; 菡蓴 *Ch'en fan*.

KUO P'Ö:—It is found in the mountains. The leaves resemble those of the 韭 *Kiu* (*Allium odorum*). Another name is 提母 *T'i mu*.

HING PING:—It is a medicinal plant, also called 知母 *Chi mu*. The *Pen ts'ao* gives more than ten synonyms. T'AO HUNG-KING says it resembles the 昌蒲 *Ch'ang p'u* (*Acorus*), and is flexible.

P., XIII, 39, *chi mu*, and *Ch.*, VII, 41, rough drawing. Root used in medicine. TATARINOV, *Catal. med. sin.*, 16, *chi mu*, *Radic. Anemarrhenae asphodeloidis*. HANBURY, *Scient. Papers*, 259, describes and figures the rhizome of this plant beset with rufous hairs. This liliaceous plant is common in the Peking mountains. It has long linear lanceolate radical leaves. The scape is 3-4 feet high with a long terminal spike of small brownish violet flowers.

So moku, II, 14, and *Phou zo*, V, 20, 21, 知母 *Anemarrhena asphodeloides*, Bge.

E., 129, family 知母. The three very different figures are copies from *S.*, II, 27. The first figure is probably intended for the same as the first in *E.*, 140, family 沙參 (*Adenophora*), where 知母 is one of the synonyms. One of the figures may mean *Anemarrhena*.

Jap., 153. *C.*, 136. *Sm.*, 17; but *Sm.*, 57, *Chelidonium majus*. Where in China is *Ch.* called so?

95.—薺 *Yü*; 蔞 *Si*.

KUO P'Ö:—It is now called 澤蔞 *Tse si*.

HING PING:—The *Pen ts'ao* calls it 澤蔞 *Tse sie*, also 水蔞 *Shui sie*. Other names 及蔞 *Ki sie*, 芒芋 *Mang yü*, 蔞蔞 *Kü sie*. T'AO HUNG-KING says:—its leaves are narrow and long; it grows in shallow water.

P., XIX, 1, *tse sie*, a water-plant. *Tse sie* is the vulgar name of our common *Alisma plantago*, which in Northern China is frequently seen in water-ditches. The roots produce

large tubers, which are used in medicine. Good drawings of the plant, sub. 澤瀉, are given in the *Kin huan*, XLVII, 5, in *Ch.*, XVIII, 1, and in the Japanese *So moku*, VII, 35.

E., 140, family 澤瀉. One of the four figures is a good drawing of *Alisma pl.*

S., I, 21, has three figures. The figure to *P.*, 19, 1, agrees with one in *E.*, 140, named *tse sie* of 豫州.

C., 1354. *Sm.*, 7.

96.—藟 *K'ou*; 鹿藿 *Lu ho*; 其實葇; its fruit is called *nin* (*ch'ou*).

K'ou P'ou:—It is now called 鹿豆 *Lu tou* (deer's bean).

The leaves resemble those of the 大豆 *Ta tou* (*Soja hispida*). A climbing plant. Fragrant, yellow root.

HING PING:—The *Pen ts'ao* says that it has a bitter taste.

P., XXVII, 27, 鹿藿 *Lu ho*, also 豇豆 *Lao tou*, a climbing leguminous plant, wild-growing, used as a vegetable. The small black seeds, which resemble pepper, are edible. The *Kin huan*, LIII, 15, and *Ch.*, III, 45, figure the *lu ho* with trifoliate leaves.

So moku, XIII, 33, 鹿藿 *Rhynchosia volubilis*, Lour. The *Phon zo*, I, 2, 3, applies this Chinese name both to *Rhynchosia* and to *Glycine ussuriensis*, Rgl.

LOUREIRO, *Flora cochin*, 562, says, regarding *Rhynchosia volubilis*:—caulis volubilis, folia ternata, semina nigra nitida. Habitat inculta prope Cantonem. Nomen sinicum *Chio tau* (perhaps 豇豆).

E., 37, 9, family 豆. The figure, like that in *P.*, 27, is not with trifoliate leaves.

E., 111, family 葛, the term *lu ho* is synonymous with *ko* (*Pachyrrhizus* [*v. infra*, 390]).

97.—藟 *Hao*; 侯莎 *Hou so*; 其實蜺; its fruit is called *ti*.

Kuo P'ou:—The *kao* is mentioned in the *Hia Siao cheng* (Calendar of the Hia Dynasty). It is also called 莎階 *So sui*.

HING PING:—The *Kuang ya* calls it *so sui* and 地毛 *Ti mao*,

The above-quoted passage in the Hia Calendar is 正月 緹縞. DOUGLAS translates it:—in the first month fruits the *Cyperus*. The *Shuo wen* explains the character 涉 by 鎬 倭.

P., XIVb, 58, 莎草 *So ts'ao* or 香附子 *Hiang fu tsz'* (fragrant tuber).⁶

As synonyms are given the names in *Rh ya* 73 and 97. But the author of the *Pen ts'ao kang mu*, and before him other Chinese authors, confound two distinct cyperaceous plants. *Rh ya* 73 is the *so ts'ao* a *Scirpus* or *Cyperus*, the fibres of which, in ancient times, were made into rain cloaks and hats [see also *infra*, 457], but the plant *hao* [97] seems to denote the *hiang fu tsz'*, which is the *Cyperus rotundus*, L. Its fragrant tubers are used in medicine.

LOURIEIRO, *Flora cochîn.*, 53, *Cyperus rotundus*, L., since *hiam phu çu*. HOFFM. & SCH., 192, 193, refer the name 香附子 only to *Cyperus rotundus*, and 莎 to *C. Iria*. But the *Phou zo*, IX, 35, applies both these Chinese names to *Cyperus rotundus*, as does also *Ch.*, XXV, 35. The figure in this latter work represents a sedge with oblong tubers.

E., 107, family 莎, the figure is bad, a *Cyperus* probably intended [*v. supra*, 73]. *Jap.*, 731, 莎草科 *Cyperaceæ*.

C., 412. *A.*, XV, 181. [*Sm.*, 81, *C. esculentus*], under the name *Hiang fu*. *Jap.*, 740, *Cyperus rotundus*, L., 香附子.

98.—莞 *Kuan* (*Juan*); 苻薹 *Fu li*; 其上落. The upper part of the plant is called *li*. [See also 4, where the same name (*li*) is applied to an *Allium*.]

KUO P'ò:—Nowadays the people of 西方 *Si fang* (Western China) call the 蒲 *P'u* (cat's-tail, *Typha*, *v. infra*, 375) 官蒲 *Kuan p'u*, and its head *li*. In Kiang tung the same plant is called *fu li*, and by *li* they understand the inner part of the stem, of which mats are woven.

⁶ 附 *Fu* properly denotes the tuberous root of *Aconitum*.

HING PING:—某氏 states that *fu li* is another name for the 白蒲 *pai p'u* (white rush). In 楚 Ch'u (Hu kuang) it is called 莞蒲 *kuan p'u* and its head is *li*. CHENG HUAN, in commenting upon the *Shi king*, says:—the 莞 *kuan* is a water plant, it grows thickly crowded together, has a round stem. It resembles the 小蒲.

P., XIV, 14, gives *kuan* as a synonym for 白芷 *pai chi*. But this is evidently a mistake, for *pai chi* is an umbelliferous plant [c. *infra*, 410], whilst *kuan* is a rush [c. *infra*, 455].

E., 68, family 蒲, with six figures, apparently all *Acorus*, except the last, which is a *Typha*. 31 names are given; *p'u* and *huan* are from the *Shi king*.

P., XIX, 13, with the names 香蒲 and 黃蒲.

C., 420, *Typha japonica*, Miq. = *Jap.*, 2253.

B., *T. angustifolia*, L., Sm., 223, *T. Bungeana*, Tatar.

99.—荷 *Ho*; 芙蕖 *Fu k'u*. The *Lotus*, *Nelumbium speciosum*.

其莖茄 its stem is called *kia*.

其葉蓮 its leaf is *hia*.

其本薔 its lower part is *ni*.

KUO P'Ō:—Another name for the *ho* plant is 芙蓉 *fu yang*. In Kiang tung the name *ho* is usual. Regarding the character 薔 *ni*, KUO P'Ō says that it is the white rhizome (白藕) of the plant which is amongst the mud.

E., 93, family 蓮, with a good figure.

C., 721-729. Pr., 136, 137. Sm., 139. S., XI, 15.

Pr., 219, gives 芙蓉, for *Crossostephium artemisoides*, Less., (a Composite). These two characters are also used for *Hibiscus mutabilis*, L., in Canton Province, or in South China according to W.D., 144. E., 93, quotes it as a synonym for *Nelumbium*, from the

古今注.

100.—其華菡萏 its flower is *han tan*.

其實蓮 its fruit is *lien*.

KUO P'Ō:—*Lien* means the 房 *Fang*, or receptacle.

101.—其根藕. Its root is *ou*.

其中的. The seed is called *ti*. [Comp. also 191.]

的中薏. The centre of the *ti* is called *i*.

Kuo P'o explains that by *ti* the seeds inside the *lien*, or receptacle, are meant, and that *i* is the bitter heart (of the seed), the *cotyledons*.

HING PING:—LI SĒN says that all the above terms (99-101) refer to the 芙渠 *fu k'ü* and its stem, leaves, flowers, fruit and root. The people in Kiang tung call the flowers of the *ho* plant 芙蓉 *fu yang*. In Northern China the root (*ou*) is called *ho*, and the term *ho* is also applied to the *lien* or receptacle. In Shu (Sz' ch'uan) they call the root 茄 *kia*.

The *Rh ya* gives under the above names two quite exact drawings of *Nelumbium speciosum*. It is also figured in *Kiu huang*, LVIII, 22, *Ch*, XXXII, 9, and *So moku*, X, 9, 10. Description in *P.*, XXXIII, 16. [V. also *infra* 395.]

102.—紅 Hung; 龍古 Lung ku; 其大者龍 that of large size is called *k'ui*.

Kuo P'o:—The common name is 紅草 *hung ts'ao*, also 龍鼓 *lung ku*.

HING PING:—SHE JEN gives the names *hung* and 龍古 *lung ku*. In the *Shi king* it is termed 游龍 *yu lung* (and 蓼 *liao*).

V. *infra*, 426, *Polygonum orientale*.

The drawing in the *Rh ya* agrees.

E., 58, family 蓼, with two figures, of which one is not a *Polygon*.

S., III, 38. *P.*, 16, 79, with a good figure.

103.—莖 Ts'o; 蓼實 the fruit of the *tsi*.

Kuo Po explains:—the seeds of the *tsi* plant.

HING PING:—The *Pen ts'ao* says the *tsi* is of a sweet taste. A soup can be made by boiling the leaves. Mentioned in the *Shi king*.

V. *infra*, 367, *Capsella bursa pastoris*.

104.—**廢** *Fen*; **枲實** fruit of the *i* (*si*) plant.

枲 *I* (*si*) is the same as **麻** *ma* (hemp).

Kuo P'o quotes the *Li ki* 苧麻之有廢, the female hemp bears the *fen*. But this passage is, as HING PING corrects, from the *I li*.

V. infra, 388, *Cannabis sativa*, L.

E., 38, family **麻**, sub-family **胡麻**. The figure represents *Sesamum indicum*, L. Other sub-families [*v.* 140 and 388].

105.—**須** *Sū*; **蕒蕒** *Sun wu*.

Kuo P'o:—The plant (root) resembles a 羊蹄 *yang ti* (sheep's hoof). It (the leaves) can be eaten; is of a sour taste.

HING PING:—According to MAO, this is the same as the 蕒 *jeng* of the *Shi king* [*v. infra*, 361]. SUN YEN says that the *sū jeng tsung* [*Rh ya*, 83] is also the same. Some commentators identify the *jeng* with the 蔓菁 *man tsing*, which is a *Rape*.

P., XIX, 7, identifies the *sū* or *sun wu* with the 酸模 *swan mo*, which is a Sorrel, *Rumex*. [*V. infra*, 441.]

E., 160, family 酸模, with figure of *Rumex*.

One synonym is *Mountain Rhubarb*, 山大黃.

E., 69, family 蔓菁, has figures of four different plants. The same terms from the *Rh ya* are enumerated here as in *E.*, 160.

106.—**菲** *Fei*; **苳菜** *Sì ts'ai*.

Kuo P'o:—The *fei* plant grows in low, damp places. It resembles the 蕒菁 *wu tsing* (rape) but has violet flowers. It is edible.

HING PING:—In another place (50) the *Rh ya* states that *fei* is the same as 芡 *wu*. But this is a different plant mentioned in the *Shi king*.

V. infra, 363, *Radish*?

E., 104, family 菲 [*v. supra*, 50].

蕒菁 is a synonym of 蔓菁 according to *E.*, 69.

107.—**蕒** *K'ni*; **赤菟** *Chi hien* (red *Blitum*).

Kuo P'o:—This is a variety of the *hien* (*Blitum*) with a red stem.

HING PING:—**莧菜** *Hien ts'ai*, a vegetable, with a red stem. According to *P.*, XXVII, 9, **莧** *hien* is a general name for several species of *Amarantus*. At Peking it is applied to *Amarantus Blitum*, L. Figured under *hien* in *Kin huan*, LVIII, 25, and *Ch*, III, 9.

SIEB. *Plant. æcon. japon.*, 124, **莧** *Amarantus oleraceus*, L., (a) *caule foliisque viridibus*, (b) *caule foliisque purpurascens*.

Phon zo, XLVIII, 17-19, **莧** *Amarantus mangostanus*, L., and same Chinese name applied to *Euzolus viridis*, Moq. (*Amarantus Blitum* in THBG. *Flora japon.*, 57). Ibidem, 20, **赤莧**, *A. melancholicus*, L., also *A. caudatus*, L., and *A. tricolor*, L., all with purplish foliage.

So moku, XX, 22, **莧** *Amarantus melancholicus*. Ibidem, 23, **野莧** *Euzolus viridis*.

E., 61, family **莧**. Two figures, one representing an *Amarantus*, the other *Portulacca oleracea*, L. *S.*, X, 4. *A.*, XV, 106, 168, **紅莧** *A. tricolor*, L.; **白莧** *A. polygamus*, L. *W. D.*, *Chenopodium* (*Spinacia*). *Sw.*, 59, *Ch. rubrum*.

108.—**蘿藦** *Ts'iang mei* (*mi*); **薺冬** *men tung*.

K'uo P'o:—According to the *Pen ts'ao* this is the **門冬** *men tung* or **滿冬** *man tung*.

HING PING quotes the *Shan hai king*. Now the *Pen ts'ao* writes the name **天門冬** *t'ien men tung*, also **顛勒** *tien le*, **麥門冬** *mai men tung*. In 秦 Ts'in (Eastern Kansu and Shensi) it is called **羊韭** *yang kin* (sheep's *Allium*), in 齊 Ts'i (Northern Shantung) **愛韭** *ai kin*, in 楚 Ch'u (Hukwang) it is **馬韭** *ma kin* (horse's *Allium*), in 越 Yne (Chekiang) it is **羊薺** *yang shi*. Other names are **禹馱** *yü kia* and **禹餘糧** *yü yü liang*.

The commentators of the *Rh ya* here confound under the above names two plants which are kept apart in the *Pen ts'ao kang mu*.

天門冬 *T'ien men tung*, *P.*, XVIII, a, 47. The plant cultivated at Peking under this name is *Asparagus lucidus*.

Linll. *Ch.*, XXII, 9, figures s.n. a plant with tuberous roots, linear leaves (*Asparagus*). See also *K'iu huang*, LI, 4.

HANBURY, *Science Papers*, 257, describes the tubers of the Chinese *t'ien men tung*, received from Shanghai, supposing that they belong to LOUREIRO's *Melanthium cochinchinense*, *Flor. Coch.*, 268, *t'ien men tun*. See BENTHAM's note on this plant in *Flora Hongk.*, 371, sub. *Asparagus lucidus*.

HENRY, *Chinese Names of Plants*, 463, *T'ien men tung* in Hupei is *Asparagus lucidus*.

So moku, VII, 7, 天門冬 *Asparagus lucidus*, Lindl.

The other *Men tung* is the 麥門冬 *Mai men tung*. This plant, much cultivated at Peking, is the *Ophiopogon spicatus*, Gawl. It is described *P.*, XVI, 16; good drawings of the plant are found in the *Kiu huang*, LI, 6, and *Ch.*, XI, 10.

HANBURY, *Science Papers*, 256, figures the tubers of the *Mai men tung*. *Ann. exot.*, 823, 門冬 *Ophiopogon japonicus*, Gawl., with figure. *So moku*, VI, 46, 小葉麥門冬 (*ai ti men tung* with small leaves) is *Oph. japonicus*, and, 45, 大葉麥門冬 (the large leaves) is *Oph. spicatus*.

It cannot be decided whether the *men tung* in the *Rh ya* is intended for *Asparagus* or *Ophiopogon*. The *men tung* is repeatedly noticed in the *Shan hai king*.

E., 173, family 天門冬, with seven figures, of which five may represent species of *Asparagus*, the first being a good figure of *A. lucidus*. [*V. supra*, 92.]

S., I, 5, represents two kinds. *Pr.*, 206. *A.*, XV, 179.

C., 1301, *Asp. filicius*, Ham.; 1302, also *A. lucidus*.

E., 174, family 麥門冬, with three figures, apparently of *Ophiopogon*.

S., I, 15. *A.*, XV, 179, according to LOUREIRO, *Ancilema medica*, R. Br.

Sun., 17, *Ancilema medica*; 162, *Ophiopog. jap.*; 194, *Scorzonera*.

Both names of the *Rh ya* are heading *E.*, 173 and *E.* 174.

109.—藨苳苳止. Unknown to the Chinese commentators.

110.—**澤** *Lo*; **貫衆** *Kuan Chung*.

Kuo P'o :—Leaves round and pointed. Stem black, covered with hairs. It covers the ground; does not die in winter. Another name is **貫渠** *Kuan k'ü*. The *Kuang ya* calls it **貫節** *kuan tsie*.

HING PING :—The *Pen ts'ua* gives the names **百頭** *Pa t'ou*, **虎卷** *Hu k'uan*, **鸛荷** [c. 103], **伯苻** *Po p'ing*, **藥蕒** *Yo tsu*, **鸛頭** *Ch'i t'au* (owl's head). T'AO HUNG-KING says, the leaves of this plant resemble those of the **大蕨** *ta k'ü* (a fern), are covered with hairs, and resemble the head of an owl [probably the young unexpanded leaves].

Kuan chung is a fern. *P.*, XII b, 18. Root said to be poisonous. *Ch.*, VIII, 16, represents under *kuan chung*, a fern with pinnate fronds.

Phon zo, VI, 3, 4, **貫衆**, a fern, according to FRANCHET, *Lomaria japonica*, Kunze. According to FAUVEL [*A Naturalist in the Far East*, 11] the above Chinese name is applied in Shantung to *Aspidium falcatum*, Hance. HENRY, *Chinese Names of Plants*, 199, *kuan chung* in Hupei a large fern, the rhizome of which is used as a drug, *Woodwardia radicans*, Sm. *Ibidem*, 200, **毛貫衆** *Mao kuan chung* (hairy *kuan chung*) *Onclea orientalis*, Hook., and *Nephrodium filix mas*, Rich., our common male fern.

E., 133, family **貫衆**. The figure is a copy of *S.*, IV, 21, and nearer to *Aspidium falcatum* than to a *Woodwardia*. The figure in *P.*, XII, differs, being bipinnate.

Jap., 253, gives the name for *Asp. falcatum*, Sw.

C., 647, *Woodwardia* and perhaps other large Ferns.

111.—**葍** *K'ün*; **牛薺** *Niu tsao*.

Kuo P'o :—It resembles the **薺** *Tsao* [*r. infra*, 401]. The people in Kiang tung call it **馬薺** *Ma ts'ao*.

V. infra, 401, *Potamogeton*.

E., 66, family **薺**, with two figures, one may be intended for a *Potamogeton* or a *Najas*.

Sm., 129, *Laminaria* includes one of the names given here as a synonym. It is possible that some Chinese apply the terms to sea-weeds [v. *infra*, 197] and other water-plants.

Jap., 1742, *Potamogeton oxyphyllus*, Miq., 馬藻. [Comp. *supra*, 85.]

112.—蕪蕪 *Chu shang*; 馬尾 *Ma wei* (horse's tail).

KUO P'Ö:—The *Kuang yu* has 馬尾 *Ma wei* or 蕪陸 *Shang lu*. The *Pen tsao* writes 蕪 *Shung*. The same name is in use in Kuan si (Southern Shensi). In Kiang tung the people call it 當陸 *Tang lu*.

HING PING:—The *Pen tsao* gives also the names 蕪根 *Shang ken*, 夜呼 *Ye lu*, 白昌 *Pai ch'ang*.

In *P.*, XVIIa, 8, the *Shang lu* is described as a plant with large, thick leaves, resembling the 牛舌 *Niu she* (*Rumer*); the root resembles that of the radish. There are two sorts, one with white flowers and a white root, the other with purple flowers and purple root. The latter is said to be injurious to men. The plant is much cultivated in gardens. Roots and leaves are cooked and eaten. The root is also used in medicine.

At Peking *Shang lu* is *Phytolacca acinosa*, Roxbg., which is also found in India. According to ROXBURGH, in India the leaves are eaten after boiling, as is the case with *Ph. decandra*, the Pokeweed of N. America, the root of which is emetic and cathartic.

Ch., XXIV, 3, *Shang lu*, good drawing of *Phytolacca*. It is represented also in *Kin huang* LI, 5.

Amoen. exot., 828, 蕪陸 *sjooriku*, vulgo *jamma gobo*. (*Cumicone*). *Planta sylvestris radice rapacea eduli . . . folio Lapathi*, etc. This is *Ph. acinosa*. *So moku*, VII, 90, same Chinese name, *Ph. acinosa*.

E., 131, family 商陸, with a good figure of *Phytolacca*. The term *lu* [v. *I king*].

S., IV, 25, with two bad figures. *C.*, 1111. *Sm.*, 171.

113.—萍 *P'ing*; 萍 *P'ing*.

Kuo P'o:—This is a water-plant, called also 浮萍 *jou p'ing* (floating *p'ing*). In Kiang tung it is called 藻 *p'iao*.

The drawing of the *Rh ya* represents duck weed, *Lemna*. [*V. infra*, 400.]

E., 67, family 萍. The figure, a copy of *S.*, III, 9, is not of *Lemna*, but of *Monochoria Korsakowii*, Regl. *B.*, gives 萍蒲蒿 for *Lemna*, *Azolla*. [*Jap.*, 313, *Azolla pinnata*, R. Br. 滿江紅.]

114.—其大者蘋. A larger kind (of the *p'in*. This is *Marsilea*. [*V. infra*, 400.]

E., 67, family 蘋, with a good figure of *Marsilea*.

Jap., 1499, gives *M. quadrifolia*, L., with this Chinese name.

115.—蔕 *Hi*; 免葵 *T'u k'ui* (hare's mallow).

Kuo P'o:—The plant resembles the *k'ui* (mallow) but it is smaller. In shape the leaves resemble the leaves of the 藜 *li* (*Chenopodium*). The plant is covered with hairs. It can be eaten, is mucilaginous.

P., XVI, 28, *t'u k'ui*. Vagne, confused description. The corresponding drawing *Ch.*, III, 7, seems to refer to a Mallow.

HOFFM. & SCHULTES, 42, 免葵 *Anemone altaica*, Fish. The same Chinese name is applied in the *Phon zo*, XVII, 19, to *Anemone flaccida*, Schm., in the *So moku*, X, 35, to *Eranthis keiskii*, Franchet, (*Hannuculaceae*).

E., 85, family 葵 [*v. supra*, 76]. The figure of *t'u k'ui* is not of a mallow.

P., XVI, 28, figure indicates a *Malva*.

Jap., 882, *Eranthis pinnatifida*, Max.

116.—芹 *K'in*; 楚葵 *Ch'u k'ui* (mallow of Ch'u [Hukuang]).

Kuo P'o:—Commonly called 芹菜 *K'in ts'ai*. It is an aquatic vegetable.

HING PING:—The *Pen ts'ao* calls it 水芹 *Shui k'in* or 水葵 *Shui ying*. T'AO HUNG-KING states that in the second or third month the young leaves are eaten, after cooking, or salted. Another kind, which is called 菠芹 *chu k'in* can be eaten raw.

Others say that there are two sorts of *k'in*, the 荻芹 *Ti k'in*, of which the white root is used, and the 赤芹 *Ch'i k'in*, (red *k'in*), of which the stems and leaves are employed for pickles or salted.

V. infra, 370, *Oenanthe stolonifera*.

E., 65, family 芹. *H.*, 67. *Sm.*, 20, *Apium graveolens*; 57, Celery, parsley and watercresses.

117.—蕒 *T'ui*; 牛薺 *Nin t'ui*.

KUO P'Ö:—In Kiang tung its common name is *nin t'ui*. The plant grows more than a foot high; it has a square stem, long pointed leaves, ears with violet bluish flowers. The people make an infusion of the plant and drink it.

HING PING:—CHENG HÜAN says that this is the 薺 *Ch'u* of the *Shi king*. [*V. infra*, 440, *Rumex*.]

E., 64, family 薺. figure leaves of *Rumex*.

118.—蕒 *Su*; 牛薺 *Niu shan* (oxlip).

KUO P'Ö:—The *su* is mentioned in the *Shi king*. MAO says that it is the same as the 水蓼 *Shui si* [*v.* 95, *Alisma plantago*]. It resembles the 蕒斷 *Su tuan*. The plant has joints one inch apart.

The *su tuan* is mentioned in *P.*, XV, 45, and the name is written there 續斷. At Peking this name is applied to *Dipsacus japonicus*, Miq. The drawing in *Ch.*, XI, 33, *su tuan*, seems to represent a *Dipsacus*. HENRY, *Chinese Names of Plants*, 164, *su tuan* in Hupei is *Dipsacus asper*, Wall. The root of the *su tuan*, as the name indicates, is said to have the power of joining together broken bones. Comp. regarding the medicinal virtues of this plant *Mém. conc. les Chinois*, IX, 166.

In Japan the Chinese name 續斷 is applied to *Lamium album*, L. See *So moku* XI, 11.

We are left in doubt what the *su*, or oxlip plant, was. [*V. infra* 437.]

E., 133, family 續斷, with two figures, one *Dipsacus*, the other a *Lamium*, copied from *S.*, I, 43. *C.*, 474, *Dip. asper*, Wall., or *Lamium album*, L., *Var. barbatum*. *Jap.*, 1226.

Sm., 64, *Cirsium lanceolatum* (probably a *Cnicus*).

The two terms are not mentioned in the *Rh ya*.

119.—**葦** *P'ing*; **蘼蒿** *Lai siao*.

KUO P'IO:—It is now called **蘼蒿** *Lai hao* (*Artemisia*). When young the leaves can be eaten. [*V. infra*, 372, *Artemisia*.]

E., 104, family **葦**, without figure.

120.—**連** *Lien*; **異翹** *I k'iao*.

KUO P'IO:—Another name is **連苕** *Lien tiao*. According to the *Pen ts'ao* it is also called **連草** *Lien ts'ao*.

HSU P'ING:—Other names for this plant are **蘭華** *Lan hua*, **折根** *Che ken* and **枳** *Chi*. The commentator on the *T'ang Pen ts'ao* states that there are two kinds of this plant, the **大翹** or great *k'iao* and the **小翹** or little *k'iao*. The first has long, narrow leaves like the **水蘇** *Shui su* [*r.* 64], beautiful yellow flowers. The fruit is a capsule, resembling that of the **楮** *ch'un* (*Cedrela*). It grows in low, damp places. The little *k'iao* grows on high mountains. It resembles the former, but the leaves and flowers are smaller.

P., XVI, 65, **連翹** *Lien k'iao*. Described as an herbaceous plant growing in damp places. Yellow flowers, fruit a capsule, resembling the fruit of *Cedrela*. *Ch.*, XI, 61, s.n. had drawing; 62, *lien k'iao*, from Hunan and Yunnan, seems to represent a *Hypericum*. Large yellow flowers. But the drug sold at Peking under the name of *lien k'iao* is the capsules of a shrub, the *Forsythia suspensa*, Vahl. HANBURY received the same under the Chinese name *lien k'iao* from Shanghai [*Science Papers*, 245].

Phon zo, XIX, 12, 13, **連翹** *Hypericum ascyron*, L., and other species. *So moku*, XIV, 30, 32, **小連翹** *H. erectum*, Thbg., and *H. japonicum*, Thbg. But in Japan likewise the name **連翹** is applied also to *Forsythia suspensa*. *Kwa rei*, 109. SIEBOLD, *Icones. ined.*, V.

E., 131, family 連翹, with bad figure.

S., V, 4, with two figures, both bad, not like *Hypericum*.

Sm., 98, *C.*, 719, and *Jap.*, 965, *Forcythia suspensa*, Vahl.

Sm., 126, *Justicia*? *Jap.*, 1119, 小連翹 *Hypericum erectum*, Thbg.

121.—澤 *Tse*; 烏葳 *Wu sui*.

Kuo P'ao refers to 33, an obscure plant.

122.—傳 *Fu*; 橫目 *Hung mu*.

Kuo P'ao:—Other names 結縷 *Kie lü*, 鼓笳草 *Ku cheng ts'ao*.

HING PING:—A trailing plant.

E., 134, family 橫目, without figure.

123.—釐 *Li*; 蔓華 *Man hua*.

Kuo P'ao:—Another name is 蒙華 *Meung hua*.

124.—菱 *Ling*; 蕨攢 *K'ue mei*.

Kuo P'ao:—A water-plant, now called 菱 *K'ü*.

HING PING:—The *Tsz' lin* [third century] says:—The people of 楚 (Chu) (Hukuang) call it 菱 *Ling*. It is edible. The 國語 *Kua yü* [fourth century B.C.] mentions the 菱 as an edible plant. Its common name is 菱角 *Ling k'ue*.

This is the water caltrop, *Trapa*. [*V. infra*, 397.]

E., 99, family 菱, with figures of *Trapa natans*, L., in different stages. *S.*, XI, 21. *Sm.*, 221. *H.*, 243-245.

125.—大菊 *Ta kü* (the great *kü*); 蓮麥 *K'ü mai*.

Kuo P'ao:—Other names 麥句薑 *Mai kü kiang*; 瞿麥 *K'ü mai*.

HING PING:—A medicinal plant. In the *Kuang ya* it is called 茺藭 *Tsz'z' wei*. Other names in the *Pen ts'ao* 巨句麥 *Kü kü mai*, 大蘭 *Ta lau*. T'AO HUNG-KING says:—Common by waysides, red flowers.

The first name in *Hk ya*—*Ta kü*—properly means the great *Chrysanthemum* [comp. *infra*, 130].

P., XVI, 46, *K'ü mai* or 石竹 *Shi chu*. This latter name, which first appears in the *Ji hua pen ts'ao* [tenth century]

denotes the pink, *Dianthus*. This plant is represented under the above names in the *K'ü huan*, XLVI, 8, and in *Ch.*, XI, 55. *Dianthus chinensis*, L., and *D. superbus*, L., are common plants in North China.

So moku, VIII, 20, 石竹 *Dianthus superbus*, L. 22, 石竹 *D. Siegnieri* (*D. chinensis*).

E., 120, family 石竹, with a good figure of *Dianthus superbus*, L.

C., 237. *Sm.*, 86, *Dianthus Fischeri* (= *chinensis*, L.).

Jap., 787, *D. chin.*, 石竹, 790, *D. sup.* 瞿麥.

126.—吐養. Unknown to the Chinese commentators.

127.—藟 *Tsien*; 山莓 *Shan mei* (mountain berry).

Kuo P'o:—It is now called 木莓 *Mo mei* (tree berry). The fruit resembles that of the 藟莓 *piáo (pao) mei* [*Rubus*, r. 190], but is larger. It can be eaten.

P., XVIIIa, ii, 懸鉤子 *Hsuan kou tsz*, described as a spiny shrub with red, sour, edible fruit. Identified with the *tsien* of *Rh ya*.

The plant represented under the above Chinese name in *Ch.*, XX, ii, is a *Rubus*. HENRY, *Chinese Names of Plants*, 348, *hsuan kou tsz* in Hupei, *Rubus corchorifolius*, L. f.

Amen. exot., 787, 莓 *foo*, item *uoo*, vulgo *itzingo*, *Rubus vulgaris fructu nigro*.

SIEBOLD, *Syn. pl. acon. jap.*, 341, 懸鉤子 *Rubus palmatus*, Thbg. Same identification *Phon zo*, XXV, 17, 18.

E., 114, family 懸鉤子, with a bad figure, probably *Rubus*, but not *corchorifolius*. *Jap.*, 1935, *R. incisus*, Thbg.

128.—藟 *Ye*; 苦蕒 *K'ü kin* (bitter kin).

Kuo P'o:—It is now called 蕒葵 *K'ü k'ai*; leaves resemble those of the willow; small seeds. The plant is mucilaginous, edible.

HING PING:—A wild-growing vegetable, it resembles the 蕒 *Ts'i* (*Houttuynia cordata*). It is mentioned in the *Li ki*

and *Shi king*. From the passages quoted it appears that HING PING identifies the plant in question with the *kin* or violet [*v. infra*, 371]. But *P.*, XVIIb, 50, refers the bitter *kin* of *Rh ya* to the 石龍芮 *Shi lung jui*, a poisonous plant, which according to the drawings s.n. *Ch.*, XXIV, 41, and *So moku*, X, 55, is *Ranunculus sceleratus*, L., a common plant in North China.

E., 59, family 堇. The two figures show no resemblance to *Viola* nor to *Ranunculus*.

The second figure is a copy of *S.*, II, 33.

Jap., 1857, has *Ran. sceleratus*, with the name 石龍芮.

129.—蓐 *T'an*; 石灰 *Shi i* (stone clothes).

KUO P'IO:—Same as 水苔 *Shui tai* (water moss), also called 石髮 *Shi fa* (stone hairs). The plant is eaten in Kiang tung. The leaves resemble the 蒜 *Hiai* (*Allium*), but are larger. It grows at the bottom of the water.

HING PING:—This is the 海藻 *Hai tsao* (seaweed) of the *Pen ts'ao*.

In *P.*, XXI, i, the above names are referred to the 陟釐 *Chi li*, called also 水綿 *Shui mien* (water filaments), a kind of water-moss growing on stones in ditches. See also *Ch.*, XVIII, 10.

At Peking *shui nien* is a *Conferva*.

E., 74, family 諸苔, with a bad figure resembling sea-weed.

130.—藷 *Ka*; 治蘿 *Chi ts'iang*.

KUO P'IO:—This is the 秋華菊 *Ts'iu hua ka* or *Chrysanthemum*, which flowers in autumn.

HING PING quotes the *Yue ling*. *Pen ts'ao* writes 菊華 *Ka hua* and 節華 *Ts'ie hua*. TAO HUNG-KING says there are two kinds of this plant. One of them, properly so called, has a violet stem, is fragrant, and of a sweet taste. The leaves can be boiled into soup. The other kind has a green stem, is larger, of a bitter taste, not edible. It is also called 苦蕒 *K'u i*.

The 菊 *Kū* is the *Chrysanthemum sinense*, Sub. See *P.*, XV, i, *Ch.*, XI, 1, 2, *So moku* XVII, 17, 18, 19.

Regarding the *Kū* in the Classics, *c. infra*, 404.

The corresponding drawing in the *Rh ya* is *Chrysanthemum*.

As to the *K'ū* it is noticed in *P.*, XV, 5. It is also called 野菊 *Yē kū* (wild *Chrysanthemum*). This latter name, in *So moku*, XVII, 22, is applied to *Pyrethrum seticospe*, Maxim.

E., 87, family 菊, with five figures.

S., XII, 4; *H.*, 88; *C.*, 227; *Pr.*, 59.

Jap., 1809, *Pyrethrum* (= *Chrysanthemum*) *indicum*, Cass. (L.)

野菊.

131.—唐 *T'ang*; 蒙 *Meng*; 女蘿 *Nā lo*; 菟絲 *T'u sz'* (rabbit's silk). Comp. also 181.

This is the Dodder, *Cuscuta*, [*c. infra*, 450]. This plant is also intended in the corresponding drawing of the *Rh ya*.

E., 169, family 菟絲. Figure is the same *S.*, I, 9, and *P.*, XVIII, 1.

C., 1382-3, *Cuscuta chinensis*, Lam. *Sm.*, 87.

E., 150, family 松蘿, without figure, repeats all the names of *E.*, 169, but includes 松上寄生, a parasite on pine trees.

Jap., 721, *Cuscuta japonica*, Choisy.

132.—苗蓂. Unknown to the Chinese commentators.

133.—莖 *K'uai*; 藟莖 *K'uei p'en*.

K'uo P'uo:—Same as the 覆莖 *Fu p'en*. The fruit resembles the 莓 *Mei*, but is smaller. It is eaten.

HING PING:—Other names found in the *Pen ts'ao* are 蓬莖 *P'eng lei*, 陵莖 *Ling lei*, 陰莖 *Yin lei*. The name of the fruit is 覆莖子 *Fu p'en tsz'*. An author of the T'ang period says that in a rich soil the plant produces large, sweet berries, but in a poor soil the fruit is small and sour.

Under the above names, given as synonyms, *HING PING* confounds several species of *Rubus*, kept distinct in the *Pen ts'ao kang mu*.

P. XVIIIa, 9, 覆盆子 *Fu p'en tsz'*, described as an edible, red fruit, juicy, sweet and sour. Ch., XXV, 11, 12, figures under this name a *Rubus* or raspberry. HENRY, *Chinese Names of Plants*, 346, gives it as the Chinese name in Hupei for *Rubus coreanus*, Miq.

Phon zo, XXV, 11-12, 覆盆子, various species of *Rubus*, *R. Tokkura*, Sieb., *R. sorbifolius*, Maxim., *R. Thunbergii*, S. & Z., *R. pungens*, Camb.

Another *Rubus* is noticed in P., XXIIa, 7, under the name of 蓬蘽 *Peng lei*. Regarding this see *infra*, 436.

E., 114, family 覆盆子. Figure of *Rubus*.

S., XI, 20; C., 335. Sm., 115, 188, *R. idens* (quotes TATARIKOW for *Hammulus lupulina*).

A., XV, 149, *Fragaria vesca*, Lour., also *F. elatior*, Ehrh.

E., 143, family 蓬蘽. Figure of another *Rubus*. [*V. infra*, 190.]

This is said to be the name for the root.

134.—茂 *Ki*; 葦草 *Kin ts'ao*.

Kuo P'o:—This is the 烏頭 *Wu t'ou* (black head, or, perhaps, crow's head). In Kiang tung it is called *kin*.

[*V. infra*, 371, *Viola*.] P., XVI, 68, however, refers the *kin ts'ao* of the *Rh ya* to the 蒴藋 *So t'iao* of the *Pie lu*, a plant vaguely described there. The *Kuang ya* explains the character 葦 by 藋. According to HENRY, *Chinese Names of Plants*, 80, *so t'iao* is *Sambucus chinensis*, Lindl. Ch., XI, 75. Same Chinese name in Japan applied to *Sambucus Thunbergiana*, Bl. See Phon zo, XIX, 15.

E., 128, family 烏頭, for the figure referred to E., 127, family 附子. P., XVII, 44, which is *Aconitum Fischeri*, Rehb., according to C., 843. S., IV, 2, has three figures, two are copied E., 127, and one in E., 147, family 蒴藋, where five names are mentioned. The figure may mean *Sambucus*.

135.—藏百足. Unknown to the Chinese commentators.

136.—葍 *Kien*; 戎葵 *Jung k'ui* (mallow of the western barbarians).

KUO P'Ō :—It is now called 蜀葵 *Shu k'ui* (mallow from Sz'ch'uan). Its flowers resemble those of the 木槿 *Mu kin* (*Hibiscus syriacus*).

HING PING :—The characters 戎 and 蜀 have the same meaning (designate the same country).

Shu k'ui is the common name for *Althæa rosea*, Cav., a common Chinese garden plant. *P.*, XVI, 26. Good drawings in the *Rh ya*, and in *Ch.*, III, 5. *So moku*, XII, 58, 蜀葵 *Althæa rosea*.

E., 85, family 葵 [*v. supra*, 76, 85].

There are 39 names enumerated, among them 7 from the *Rh ya*. *Jap.*, 124. *Sm.*, 10. [Comp., 113, *Hibiscus rosa sinensis*, L., which is found in *E.*, 295, family 扶桑, synonym 佛桑. *P.*, XXXVI, 65.]

137.—繫 *Ki*; 狗毒 *Kou tu* (dog's poison).

KUO P'Ō :—FAN KUANG states :—There is a popular proverbial saying, "as bitter as the *ki*."

E., 108, family 薊 [*v.* 8, 62, 159, 208] *Cynaroidæ*.

138.—垂比藥. Unknown to the Chinese commentators.

139.—獲 *Fu*; 盜庚 *Tao keng*.

KUO P'Ō :—Same as 旋覆 *Sūan fu*. It resembles the *kū* (Aster or Chrysanthemum).

HING PING :—Other names found in the *Pen ts'ao* are 戴棋 *Tai shen*, 金沸草 *Kin fei ts'ao*, 盛棋 *Sheng shen*. T'AO HUNG-KING says :—It grows by waysides in low, damp places; resembles the *kū hua* (Chrysanthemum).

P., XV, 35, *Sūan fu hua*, a composite plant with yellow flowers described. The drawings s.n. *Kin huang*, XLVI, 16, and *Ch.*, XI, 68, represent an *Inula*. *So moku*, XVII, 5, 旋覆 *Inula japonica*, Thbg. This is a common plant in North China.

E., 120, family 金錢花.

C., 475, *Inula Britannica*, L. *Index Fl. S.*, 428.

Sm., 119. *Jap.*, 1150.

140.—苧 *Tsz*⁴; 麻母 *Ma mu* (mother of hemp).

K'uo P'ao:—Ripe seeds of the 苧麻 *Tsā ma* (female hemp plant). This is the seed of the common hemp *Cannabis sativa*, L. In *P.*, XXII, ii, it is described under the name of 大麻 *Ta ma* (great hemp). *Ch.*, I, 3, under the same name, a good drawing of the plant. Also *Kiu huang*, LVII, ii. *So moku*, XX, 52, 大麻 *Cannabis sativa*.

E., 39, family 麻, sub-family 大麻, figure *Cannabis sativa*.

The two names from the *Rh ya* are not there. *Sm.*, 26, 50, 61.

141.—[内] *Cho*; [*v. supra* 58] 九葉 *Kiu ye* (nine leaves).

K'uo P'ao:—There is now in Kiang tung a plant called 五葉 *Wu ye* (five leaves).

142.—藐 *Mo* (*miao*); 茈草 *Ts'z ts'ao*.

K'uo P'ao:—A plant used in dyeing a purple colour. *Kuang ya* calls it 茈葵 *Ts'z lei*.

HING PING:—The *Pen ts'ao* has the name 紫丹 *Ts'z tan*. The *Ts'z ts'ao* is repeatedly mentioned in the *Shan hai king*.

The name is now written 紫草 *Ts'z ts'ao* (purple herb). *P.*, XIII, 39, states that this plant has a purple flower and a purple root, used in dyeing. This is the *Lithospermum erythrorhizon*, S. & Z., much employed in China as a dye. The plant is figured under the above Chinese name in *Ch.*, VII, 46. See also HENRY, *Chinese Names of Plants*, 508.

Amon exot., 784, 紫草 *Siso*, i.e., purpura, vulgo *murasakki*, nobilis. Herba pedalis radice ab infectioribus ad tingendum sericum expetita. THUNBERG, in his *Flora japonica*, 248, refers KEMPFER's *siso*, erroneously, to *Ocimum crispum* [*v. supra*, 64]. KEMPFER means, no doubt, *Lithospermum erythrorhizon*. SIEBOLD, *Syn. pl. acon.*, 191, *Lithospermum murasakki*.

E., 159, family 紫草. The two figures are copies from *S.*, II, 36. One is probably meant for *Lithospermum*, the other for an *Amarylliden*.

C., 1420, 1414. *Al.*, XV, 163, *Anchusa officinalis*, L., (acc. to LOUREIRO).

Jap., 1307, *L. erythrorhizon*, S. & Z., (Var. of *officinale*, L.).

143.—倚商 *I shang*; 活脫 *Huo t'o*.

Kuo P'o:—Same as 離南 [*v. supra*, 82, *Aralia papyrifera*].

144.—藏 *Chi*; 黃蔞 *Huang ch'u*.

Kuo P'o:—The *chi* plant has leaves which resemble those of the *suan tsiang* (*Physalis*, *v. supra*, 55). Small white flowers, yellow in the centre. In Kiangtung they salt and pickle it.

The *chi* is noticed in *P.*, XVI, 33, sub *suan tsiang* (*Physalis*). The plant is mentioned in the *Ku kin chu* [4th century] under the name of 苦蔞 *K'u chi*. It seems to be a species of *Physalis*. In the *Sa moku*, III, 45, 苦蔞 is *Physalis angulata*, L.

E., 64, family 蔞. The figure represents *Houttuynia cordata*, Thbg. *P.*, XXVII, 24.

Jap., 1099. *Jap.*, 1622, *Physalis angulata*, L., 苦蔞.

145.—藕車 *Kie ch'e*; 芝輿 *K'i yā*.

Kuo P'o:—A fragrant plant mentioned in the *Li suo* [*v. infra*, 419].

146.—檯 *K'ā in*; 黃華 *Huang hua* (yellow flower).

Kuo P'o:—It is now called 牛芸草 *Niu yān ts'ao*. It has yellow flowers; the leaves resemble those of the 菽蓿 *Mu su* (*Medicago sativa*).

HING PING quotes the *Shuo wen*, where it is stated that the 芸 *Yān* plant resembles the 目宿 *Mu su* (*Medicago*) and that according to the *Huai nan tsz'* it dies and then sprouts again. Mentioned in the *Li ki*.

17. *infra*, 409.

E., 108, family 芸. The figure bad, *Melilotus*?

Jap., 1957, *Ruta graveolens*, L.

147.—**萼** *Wei (mi)*; **春草** *Chun ts'ao*.

Kuo P'o:—According to the *Pen ts'ao*, this is the **芒草** *Mang ts'ao*.

HING PING:—T'AO HUNG-KING says its popular name is **蘭草** *Wang ts'ao*.

V. infra, 464.

E., 111, family **葛**, without figure.

The names of *infra*, 151, are also found here.

E., 110, family **莽草**. Figure insufficient.

E., 157, family **白薇**. Figure apparently of *Asclepiaden. Jap.*, 2330, *Vincetoxicum atratum*, M. & Decn. The same names are found here as in the *Rh ya*.

148.—**蓼葵** *Chung k'ui*; **紫露** *Fan lu*.

Kuo P'o:—This is the **承露** *Ch'eng lu*. A great (long?) stem, small leaves, violet and yellow flowers.

P., XXVII, 23, **落葵** *Lo k'ui*. The above names given as synonyms. The plant is also called **燕脂菜** *Yen chi ts'ai* (cosmetic vegetable). It is a trailing pot herb, with glabrous, succulent leaves, resembling in shape those of the apricot tree; small purple flowers in spikes, followed by black globular fruits resembling those of the *yu wei* [see the next]. Women use the purple juice of the berries to paint their faces.

This description does not correspond to the plant intended in Kuo P'o's commentary. The *lo k'ui* of the *Pen ts'ao kang mu*, is *Basella rubra*, L. It is well figured in *Ch.*, IV, 6. At Peking it is cultivated under the popular name **胭脂豆** *Yen chi tou* (cosmetic pea), for the purple juice of the black berries is used as a cosmetic.

So moku, II, 70, **落葵** *Basella rubra*, L.

E., 85, family **葵** [*v. supra*, 136]. The figure for **莢葵** is apparently *Basella rubra*, L. *Jap.*, 323.

149.—**葵** *Wei*; **莢葵** *Ch'i ch'u*. [Comp. also 240].

Kuo P'o:—Same as the **五味** *Wu wei*. A climbing plant. Fruits at the end of the stem.

HING PING:—Other names found in the *Pen ts'ao* are 會及 *Hui ki*; 玄及 *Huan ki*. An author of the T'ang dynasty says:—The flesh of the fruit is sweet and acid, the kernels (seeds) are bitter and acrid; the whole has a saline taste, whence the name *wu wei* (five tastes). The fruit resembles that of the *lo k'ui* (*Basella*), it is of the size of a cherry. The leaves resemble those of the apricot tree.

P., XVIIIa, 4, 五味子 *Wu wei tsz'*, also 玄及 *Huan ki*. The ancient authors describe it as a plant with a red stem, climbing on trees; leaves roundish, pointed; yellowish white flowers; fruit of the size of a pea, used in medicine; it contains two kernels (seeds) which resemble pig's kidneys in shape. This is the *Schizandra chinensis*, Baill., a common climbing shrub in North China. Its berries are known in the apothecaries' shops as *wu wei tsz'*. They have the same name in Hupei. See HENRY, *l.c.*, 527. See drawing Ch., XXII, 5.

Amæn. exot., 476, sub. 玄及, with figure, *Kadsura japonica*, L., a Japanese plant, allied to *Schizandra*, SIEB. & ZUCC., *Flora japon.*, I, 40, tab. 76, *Kadsura japonica*, Chinese name 南五味 (southern *wu wei*), and SIEBOLD, *Icon. japon. inedit.*, I, we find the name 北五味 (northern *wu wei*) applied to *Schizandra chinensis*. Comp. also *Phon zo*, XXV, 2-6, 五味子 *Schizandra chinensis* and *Sch. nigra*. The first is said there to be a Korean plant.

E., 170, family 五味子. The two figures are taken from S., II, 5, where three can be seen.

Pr., 257, *Antidesma Bunius*, Spr.

C., 1477, *Schizandra chinensis*, Baill. *Jap.*, 2011.

Sm., 126, *Kadsura (chin.) japonica*, L. *Jap.*, 1209.

150.—藤 *T'u*; 委實 *Wei ye*. [Comp. 19.]

Kuo P'o refers to the *Shi king*, 茶蓼 [*v. infra*, 365].

151.—皇 *Huang*; 守田 *Shou t'ien* (guardian of the fields).

K'uo P'ao:—It resembles the 燕麥子 *Yen mai tsz'* [swallow wheat, v. 32] and the 彫胡米 *Tiao hu mi*. It grows in abandoned fields; is edible. Another name is 守氣 *Shou ki*.

HING PING:—*Tiao hu mi* is the same as 蘆 *Ku* [*Hydropyrum*, v. *infra*, 350].

P., XXIII, 16, identifies this plant of the *Rh ya* with the 蔺草 (the first character to be pronounced 綱 *Kang*), a plant mentioned in the *Pen ts'ao shi i* [8th century], as a plant growing in inundated fields, and resembling wheat, but smaller. It ripens (the grains) in the fourth month and can be eaten. The *Rh ya i* writes the name of this plant 蔺 *Wang* and identifies it with the *huang* or *shou t'ien* of the *Rh ya*. [Comp. *K.D.*]. It is not to be confounded with the 蔺草 *Kang ts'ao* noticed in the *Shau hai king* as a plant with leaves like the mallow—red stem, white flowers. Fruit resembles the wild grape; it is said, when eaten, to remove stupidity.

The 蔺草 figured in the *Phou zo*, XLII, 2, seems to be *Beckmannia erucaformis*, Host., [also *Jap.*, 336].

V., *supra*, 147.

152.—鉤 *Kou*; 蔞姑 *Kui ku*.

K'uo P'ao:—Same as the 鉤藟 *Kou lou* or 王瓜 *Wang kua*. The fruit resembles that of the 匏瓜 *Cho kua* [v. 58], is of a red colour and of a bitter taste.

HING PING:—The *Pen ts'ao* calls it 王瓜 *Wang kua*, also 土瓜 *T'u kua*. T'AO HUNG-KING says, the *t'u kua* grows (climbs) on fences; it has a red globular fruit and a large root. An author of the Tang dynasty says that it is a climbing plant with leaves resembling those of the *kua lou* (*Trichosanthes*), but not lobed. Fruit resembles that of the 梔子 *Chi tsz'* (*Gardenia*); it is at first green, but red when ripe; no angles. The root resembles that of the 葛 *Ko* (*Pachyrhizus*), but is smaller and mealy.

See *infra*, 386, *Thladiantha dubia*, Bge., and *supra*, 34.

E., 45, family 王瓜.

Jap., 2224, *Trichosanthes cucumeroides*, Ser.

153.—望 *Wang*; 桑車 *Sheng che*.

Kuo P'o:—It is more than ten feet long; can be made into corlage.

154.—困穢穢. Unknown to the Chinese commentators.

155.—攪 *Kuo*; 烏附 *Wu kai*.

Kuo P'o:—This is the 烏把 *Wu p'a*. Its fruit resembles the 把齒 *P'a ch'i*. It affords a black dye.

HING PING:—Popular name 狼把 *Lang p'a*.

P., XVI, 62, 狼把草 *Lang pa ts'ao*. It is described by the ancient authors as a plant resembling the 鬼針 *Kui chen* (devil's needle, *Bidens*), the fruit having forked needles. It is used in dyeing black. *Ch.*, XIV, 39. The figure is rough, does not resemble *Bidens*. But in the *So moku*, XV, 58, 狼把草 is *Bidens tripartita*, L.

E., 126, family 郎罷. The figure, if meant for *Bidens*, is bad, in *P.* not better. *Jap.*, 347, *B. tripartita*.—346, *B. pilosa*, L., is

鬼鍼草.

156.—杜 *Tu*; 土鹵 *Tu lu*.

Kuo P'o:—This is the same as the 杜衡 *Tu heng*. It resembles the 葵 *K'ai* (*Malva*); is fragrant.

HING PING:—The *T'ang Pen ts'ao* says:—The leaves of the *tu heng* resemble in shape a horse's hoof, whence the name 馬蹄香 *Ma ti hsiang* (horse's hoof fragrance). It grows in the mountains, in damp places. The root resembles that of the 細辛 *Si sin* (*Asarum*, *v. infra*, 414).

The *tu heng* is mentioned in the *Shan hai king*. Kuo P'o explains there that it is a fragrant plant; horses fed on it travel fast.

V. infra, 414, *Asarum*.

E., 148, family 杜衡. The two figures have no resemblance to *Asarum*. The figure to *P.*, XIII, 54, differs from them.

B. Ligularia Kamfperi, S. & Z. = *Senecio*, K. Dh., unlikely.

Jap., 235, *Asarum Blumei*, Duch.

157.—*肝* *Hā*; 虺牀 *Hui ch'uang* (serpent's bed).

KUO P'IO:—Same as 蛇牀 *She ch'uang* and 馬牀 *Ma ch'uang*, according to the *Kuang ya*. In the *Pen ts'ao* we find, besides the above-mentioned, the names 蛇米 *She mi*, 思益 *Sz' i*, 繩毒 *Sheng tu*, 棗棘 *Tsao ki*, 牆藟 *Triang mi*.

P., XIVa, 10, 蛇牀子 *She ch'uang ts'z*. Described as a fragrant umbelliferous plant, the seeds of which are used in medicine. The *Kiu huang*, XLVI, 21, and the *Ch.*, XXV, 4, figure under the above name an umbelliferous plant.

According to TATARINOV, *Catal. med. sin.*, 52, *She ch'uang ts'z* are the seeds of a *Cnidium*; from HANBURY'S investigations (*Science Papers*, 233), it appears that they belong to *Cnidium Monnieri*, Cuss., (*Selinum Monnieri*, L.). This is a common plant all over China. [See *Index Florae sin.*, 333]. It has not been recorded from Japan.

E., 167, family 蛇牀, with a good figure, apparently from nature.

S., II, 7. *A.*, XV, 154. *C.*, 1114. *Sm.*, 67.

158.—*蔞藪*. Unknown to the Chinese commentators.

159.—赤枹 *Ch'i fu*; 薊 *Ki*.

V. supra, 8.

160.—菟奚 *T'u hi*; 鵝瀝 *K'o tung*.

KUO P'IO:—This is the 鵝瀝 *K'uan tung*. Purple flowers. Water plant.

HING PING:—In the *Pen ts'ao* we find also the names 橐吾 *T'o wu*, 虎鬚 *Hu sū*. T'AO HUNG-KING says its flowers resemble the *kū* (*Aster* and *Chrysanthemum*).

P., XVI, 38, 款冬花 *K'uan tung hua*. Described as a plant which flowers in the twelfth month while the ground is still frozen. Its yellow flowers shoot forth from the roots, and are used in medicine.

The plant represented under the above name in *Ch.*, XI, 44, resembles *Tussilago farfara*, L. The *Kiu kuang*, XLVI, 5, figures only the leaves. LOUREIRO, *Flora cochin.*, 614, *Tussilago farfara*, Chinese *koan tun hoa*. TATARINOV, *Catal. med. sin.*, 27, *K'uan tung hoa*, *Flores Farfaræ*. The *Index Floræ sin.*, however, does not mention this plant; nor has it been gathered in Japan. There is in Japan a plant allied to it, the *Petasites japonicus*, Miq., and to this the Chinese name 款冬花 is applied there. See *So moku*, XVII, 25, 26. This plant is also known from Central China. See also HENRY, *Chinese Names of Plants*, 124.

E., 119, family 款冬, good figure, but only radical leaves of a *Senecionidea*.

S., III, 21, has two figures, one probably *Gerbera Anandria*, Sch. Bip., the other a widely separated plant.

C., 650. *A.*, XV, 159. *Tussilago Farfara*, L., and *Petasites japonicus*, Miq., (in Japan).

A., XV, 160, *Anandria Bellidistrum*, D. C. (= *Gerbera An.*).

Jap., 1593, *Petasites jap.*, Miq.

161.—中槲 *Chung k'ui*; 菌 *K'ün*.

The drawing in the *Rh ya* represents a mushroom.

Kuo P'o:—Same as 地蕈 *Ti sin*. It resembles the 蓋 *Kai*. In Kiang tung it is called 土菌 *T'u kün* or 槲厨 *K'ui ch'u*.

E., 52, family 菌. Three figures and 45 names.

All *Fungi* known to the Chinese are grouped under the three headings 芝 *E.*, 48-51, 菌 52, and 木耳 also 52. There are 66, 45 and 26 names enumerated, total 137.

162.—小者菌. The smaller kind is called *kün*.

HING PING explains that the large kind [161] is called *chung k'ui*, whilst the small one [162] is simply *kün*. The

kāu grows on trees. The *Shuo wen* explains 蕈 *Sin* by 桑 蕈 *Sang rh* (mushrooms on the mulberry tree). There is also a mushroom called 地 蕈 *Ti sin* or 地 菌 *Ti kan*.

All the above names [161, 162] refer to mushrooms, probably species of *Agaricus*. See *P.*, XXVIII, 32.

In 1877, I forwarded to the Botanic Garden, St. PETERSBURG, a collection of the dried mushrooms sold in the Peking markets. They have been examined by Messrs. KALCHBENNER and THÜMEN (Vienna) and proved to belong, for the greater part, to the genus *Agaricus*. The 香 蕈 *Hiang sin*, or fragrant *sin*, a large mushroom, was found to be new and has been named *A. Bretschneideri*.

The 蕈 is mentioned in the *Anaui, erot.*, 832, *tan vulgo taki*. *Fungus vulgaris, esculentus, albidus*, etc. THUNBERG, *Flora japon.*, 347, refers it to *Agaricus*.

Agaricus deliciosus, L., v. *A.*, XV, 184.

163.—藟 小 藥. Unknown to the Chinese commentators.

164.—茗 *T'iao*; 陵 茗 *Liug t'iao*.

KUO P'AO:—It is also called 陵 時 *Liug shi* in the *Peu ts'ao*.

E., 106, family 茗. Good figure of *Tecoma grandiflora*, Delaun. *Jap.*, 2081, 紫 葳 is among the synonyms.

S., XII, 30. *C.*, 733, 靈 霄 花 and 凌 霄 花. *Pr.*, 246. *A.*, XV, 165. *Sm.*, 38.

165.—黃 華 葳 that with yellow flowers is called *piao*.

白 華 葳 that with white flowers is called *p'ei* (*po*).

KUO P'AO:—*T'iao* flowers, variously coloured.

HING PING (referring to 164 and 165), the *t'iao* with yellow flowers is *piao*, that with white flowers *p'ei* (*po*). Mentioned in the *Shi king*. CHENG HUAN, in his commentary, says the *liug t'iao* has purple flowers.

V. infra, 448, *Bigouia grandiflora*.

The above name 陵苕 *Ling t'iao* is given in the *Pen ts'ao king* as a synonym for 紫葳 *Ts'z wei*. *P.*, XVIIIa, 29, *ts'z wei*, also *ling t'iao* and 陵霄 *Ling siao*. The ancient authors describe it as a plant, wild in the mountains and cultivated, climbing on trees; serrate leaves; flowers of the size of the flowers of the 牽牛 *K'ien niu* (*Pharbitis*) as large as a cup, orange coloured, dotted; the fruit is a pod three inches long; the seeds resemble the fruit of the elm (winged).

Ling siao at Peking is the name for *Tecoma* (*Bignonia*) *grandiflora*, Del., with which the above description agrees. The flowers are much used as a medicine. *Ch.*, XXII, 25, good drawing.

Annen. exot., 856, 陵苕, *rjotsiao* is *Bignonia grandiflora*, the same figured in BARKS' *Icones Kämpferi*, tab. 21. The same plant is represented in the *Phon zo*, XXVI, 18, 19, sub 紫葳. I cannot account for the name *ts'z wei* (purple *wei*)⁷ given to the plant, nor for the white flowered *ling t'iao* of the *Rh ya*. *Bignonia grandiflora* has orange coloured flowers.

166.—離從 *Mei tsung*; 水生 *Shui sheng*.

Kuo P'ao:—It grows in water, whence the name.

167.—薇 *Wei*; 垂水 *Ch'ui shui* (drooping to the water).

Kuo P'ao:—It grows by the edge of the water, whence the name. *P.*, XXVII, 26, *Vicia*. [*V. infra*, 378.]

E., 63, family 薇. Good figure of a *Vicia*.

168.—薛 *Pi*; 山麻 *Shan ma* (mountain hemp).

Kuo P'ao:—Same as the common cultivated *ma* or hemp, but growing wild in the mountains.

E., 39, p. 17, family 蕪. The figure indicates perhaps an *Urtica*. [*V. infra*, 388.]

⁷ The *Kuang ya* writes this name 莖葳 *Ts'z wei*.

169.—**莽** *Mang*; **數節** *Shu tsie* (many joints).

Kuo P'o:—A kind of **竹** *Chu* or bamboo with its joints close together.

E., 186-196, family **竹**, with a good figure of Bamboo.

Many local names taken from geographical works are mentioned in *E.*, 189, p. 11-17.

170.—**桃枝** *T'au chi* (peach tree branch). **四寸有節** (the joints four inches apart). A Bamboo.

Kuo P'o:—A distance of four inches between the joints. [*Comp. infra*, 456.]

171.—**鄰** *Lin*; **堅中** (solid centre).

Kuo P'o:—A bamboo with a solid centre (not hollow).

172.—**簡** *Min*; **筴中** *T'u chung*.

Kuo P'o:—Bamboo with a hollow stem.

173.—**仲無** *Chung wu*; **筴** *Kang*.

Kuo P'o:—A kind of bamboo.

174.—**筴** *Tai*; **箭萌** *Tsien meng* (sprouts of the *tsien* bamboo).

Kuo P'o:—A kind of **筴** *Sun* (bamboo sprout). The *Chou li* quoted. [*V. infra*, 374.]

篠 *Siao*; **箭** *Tsien* (Bamboo. See also above, 42, 43).

HING P'ING (referring to 169-174):—The above names refer to various kinds of bamboos, with their joints close together or far apart. The **篠** *Siao* is mentioned in the *Shu king*. According to CHENG HŪAN and K'UNG AN KUO the **桃枝** was used for making mats.

Regarding the bamboos see also below, 563, 564.

175.—**抱霍首素華軌駸**. All unknown to the Chinese commentators.

176.—苧 *Tu* (*T'u*); 夫王 *Fu wang*.

KUO P'ò:—The *tu* plant grows on the shore of the sea. It resembles the 莞 *Kuan lin*. Now the people of 越 *Yüeh* in the south use it for making mats.

The *Shuo wen* says that *lin* is a sort of *kuan* (rush, r. 16).

Aman. exot., 900, 藺 *Kin*, vulgo *Sickisa*. *Juncus sativus*, prælongus, lævis, tenuis, tensus, in agris paludosis in modum orizæ colendus, ex quo, irrigationibus et insolatione dealbato, texuntur nitidissimi tapetes, quibus duplicatis et gluma fartis sternuntur pavimenta. THUNBERG, *Flora jap.*, 145, identifies this with *Juncus effusus*, L. SIEBOLD, *Syn. pl. japon.*, 47, 藺, also 燈心草 *Teng sin ts'ao*, *Juncus effusus*, L. Pro tapetibus, pileis, velis. *Ibidem*, 48, 註苧 *Juncus lin kin wi*. Præcedentis usus. See drawing in *Phon zo*, XVIII, 14, under the same Chinese name, which HOFFM. & SCHULTES, 193, give as one of the names for *Cyperus rotundus*, L. Perhaps one of the above names refers to *Cyperus tegetiformis*. [*V. infra*, 455.]

E., 134, family 夫王, without figure and only the two names from the *Rh. ya*. *Jap.*, 1200, *Juncus communis*, *E. Mex.*, var. *effusus*

燈心草.

177.—蕨 *K'i*; 月爾 *Yüeh rh*.

KUO P'ò:—This is the 紫萁 *Ts'z k'i*. It resembles the 蕨 *K'ue* (a fern, *Pteris aquilina*) and can be eaten.

Ch., VI, 34, *k'ue ki* or *ts'z k'i*, figures a fern which looks like *Botrychium daucifolium*, Wall.

E., 63, family 蕨. The figure is a copy of *S.*, X, 25, and has no resemblance with a fern. *P.*, XXVII, 25, has a good figure.

H., 91. *Jap.*, 1794.

178.—葎 *Chen*; 馬藍 *Ma lan* (horse's indigo blue).

KUO P'ò:—It is now called 大葉冬藍 *Ta ye tung lan*, (winter indigo with large leaves).

HING PING:—This is the 靛 *tien* (Indigo).

It cannot be decided to which of the Chinese tinctorial plants furnishing a blue colouring matter [*v. infra*, 392] the

Ma lau is to be referred. The ancient Chinese commentators quoted in *P.*, XVI, 74, article *lau*, are in contradiction as to the identification.

E., 105, family 藍. Figure probably of *Polygonum tinctorium*, Lour.

A., XV, 125, 169. *Sm.*, 116. *Jap.*, 1717.

179.—姚莖涂菁. Unknown to the Chinese commentators.

180.—苧 *Hu*; 地黄 *Ti huang* (earth yellow).

KUO P'IO :—Another name is 地髓 *Ti sui* (earth marrow, *Kuang ya*). In Kiang tung it is called *Hu*.

HING PING :—The *Pen ts'ao* gives, besides the above names, the name 芭 *Pa* (in other editions 芭 *K'v*). T'AO HUNG-KING says it grows at 渭城 *Wei ch'eng* (now Hien yang hien, in Southern Shensi).

P., XVI, 1, 地黄 *Ti huang*. The ancient authors say that the plant has large, wrinkled leaves, covered with hairs; tubular flowers resembling those of *chi ma* (*Sesamum*), purplish red or yellow. Fruit a capsule resembling that of the *Lien k'iao* (*Forsythia*, *r.* 120) and containing small seeds. The root looks like a man's hand; it is of a yellow colour, succulent, used in medicine. The young leaves are eaten.

At Peking *Ti huang* is *Rehmannia glutinosa*, Lib. The above description agrees. Good drawings of the plant in the *K'iu huang*, LIII, 3, and in *Ch.*, XI, 8. The latter figures two varieties, one with voluminous roots. In some parts of China *Rehmannia* is cultivated for the yellow colouring matter of the roots. See DU HALDE, *La Chine*, I, 26, and GROSIER, *La Chine*, III, 340. The *ti huang* figured in the *Rh ya* looks rather like *Leontodon taraxacum*, L.

So moku, XI, 63, 64, 地黄 *Rehmannia glutinosa*, Lib., and *R. lutea*, Maxim., (Japan). A third Eastern Asiatic species, *R. Piasetzki*, grows in Southern Shensi.

E., 137, family 地黄, with a good figure.

S., I, 7, has two different figures.

C., 1264. *Sm.*, 184, 69, also *Comfrey*, a *Boraginæa*.

E., 140, family 沙參, *Adenophora*, *Ti huang* is given as a synonym.

Jap., 1865, as name of *Rehm. lutea*, Max.; 1864, *R. glut.* = 胡面莽.

181.—蒙 *Meng*; 王女 *Wang nü*.

Kuo P'o:—Same as the 唐, another name for 女蘿.

V. supra, 131, *Cuscuta*, and *infra*, 450.

E., 169, family 菟絲 [*v. supra*, 131] writes 玉女 instead of 王女.

182.—拔 *Pa*; 龍葛 *Lung ko*.

Kuo P'o:—It resembles the 葛 *Ko* (*Pachyrhizus*), is a climbing plant with joints. In Kiang tung it is called 龍尾 *Lung wei* (dragon's tail) also 虎葛 *Hu ko*. Small leaves, red stem.

P., XVIIIb, 35, refers these names to the 烏藪莓 *Wu lien mei*, described as a climbing plant with a white root, pentaphyllous leaves. The fruit resembles that of the 龍葵 *Lung k'ui* (*Solanum nigrum*), and contains small seeds. The drawing in *Ch.*, XXII, 74, under *Wu lien mei*, represents a *Vitis*, not unlike the drawing in the *So moku*, II, 58, 烏藪莓 which is *Vitis pentaphylla*, Thbg. The *Phon zo*, XXXI, 5, 6, has under the same Chinese name, *V. pentaphylla* and *V. japonica*, Thbg.

E., 179, family 烏藪莓, with good figure.

Jap., 2372, *Vitis pentaphylla*.

183.—蘆 *Su*; 牡茅 *Mou mao*.

Kuo Po:—A kind of 白茅 *Pai mao*.

V. infra, 459, *Imperata*.

E., 103, [*v. supra*, 48].

184.—蒼耳 *K'uan rh*; 荅耳 *Ling rh*.

Kuo P'o:—The *Kuang ya* calls it 桑耳 *Si rh* and 胡桑 *Hu si*. In Kiang tung it is 常桑 *Chang si* and *Ling rh*. It (the fruit) resembles a mouse's ear.

17. *infra*, 436, *Xanthium strumarium*, L.

E., 156, family 蒼耳, with a good figure of *Xanthium str.*

C., 1329, 1330. *Pr.*, 98, 148. *Sm.*, 233. *Sm.*, 45, also *Arctium* *sp.* *Jap.*, 2388.

185.—蕨 *Kāe*; 蘋 *Pie*.

Kuo P'ao:—The *Kuang yu* says that the *Kāe* is the same as the 茼蒿 *Ts'z' k'i* [r. 177], but that is wrong. The young plants can be eaten. The name *pie* is usual in Kiangsi.

17. *infra*, 377, a fern, *Pteris aquilina*, L.

186.—薺 *K'iao*; 芑鉅 *K'iuug kā*.

Kuo P'ao:—This is the 大戟 *Ta k'i*, a medicinal plant, according to the *Pen ts'ao*.

HING PING:—The *Pen ts'ao* calls it also 澤漆 *Tse ts'i* (marsh varnish). TAO HUNG-KING says it is a common plant by waysides, and contains a white, milky juice.

P., XVII, 13, *ta k'i*, a poisonous plant. The *Chi ien* figures under this name, XXIV, 13, a *Euphorbia*. *So moku*, IX, 17, 大戟 *Euphorbia lasiocaula*, Boiss.

The *tse ts'i* is another species. *P.*, XVII, 20; *Ch.*, XXIV, 15.

So moku, IX, 16, 澤漆 *Euphorbia helioscopia*, L.

E., 162, family 大戟, figure of *Euphorbia*, copy of *S.*, IV, 19.

C., 1215. *Sm.*, 95. *Jap.*, 918, *E. lasiocaula*.

E., 140, family 澤漆. The figure cannot mean a *Euphorbia*, but an *Apocynacea*. The figure to *P.*, XVII, 20, points to *E. helioscopia*, L.

187.—繁由胡. Unknown to the Chinese commentators.

188.—薺 *Wang*; 杜榮 *Tu yung*.

Kuo P'ao:—The *wang* grass resembles the 茅 *Mao* [r. 459, *Imperata*]. Of the outer skin they make ropes and shoes.

P., XIII, 49, 芒 *Mang*, a plant first spoken of in the *Pen ts'ao shi i* [8th century] and identified with the *wang* of

the *Rh ya*. It is also called 芭芒 *Pa mang* or 芭茅 *Pa mao*, and used for making screens.

The drawing of this plant in *Ch.*, VIII, 32, represents a *Graminea*. HENRY, *Chinese Names of Plants*, 329, identifies it with the 八王草 *Pa wang ts'ao*, which in Hupei is the name for *Erianthus japonicus*, Beauv., (*Eulalia japonica*, Trin.), a large grass.

Phon zo, VIII, 2, 芒, a *Graminea*, according to HOFFM. & SCHULTES, 229, *Erianthus japonicus*. SIEBOLD, *Syn. plant. æcon. jap.*, 39, *Erianthus japonicus*, since 菅芒 or 荻 or 茅 [*V. infra*, 459].

E., 110, family 芒. Figure certainly not intended for a *Graminea*. It may mean a *Cyperidea*, but looks more like *Aletris japonica*, Lamb. The figure to *P.*, XIII, 49, represents a grass. *Jap.*, 904, *Eulalia jap.*, Tr.

189.—稂 *Lang*; 稂莠 *T'ung liang*.

Kuo P'ao:—A kind of 稂莠 *Lang yu* [darnel, *v. infra*, 462, 463, *Gymnothrisc*].

E., 106, family 稂. Figure of a *Graminea*, large kind.

190.—蘗 *Lo* (*piao*, W.D., 682). 蘗 *P'ao* (*piao*, W.D., 682).

Kuo P'ao:—*P'ao* is the same as 莓 *Mei*. In Kiang tung it is called *p'ao mei tsz*. It resembles the *fu p'en* [*Rubus*, *v.* 133], but is larger. The fruit is acid and sweet. It can be eaten.

Some authors quoted in *P.*, XVIIIa, 7, identify this with the 蓬蘽 *P'eng lei* [*v. infra*, 436, *Rubus*].

Regarding the above characters, *piao* and *pao*, comp. HENRY, *Chinese Names of Plants*, 344-351. At Ichang it signifies berries like those of *Rubus* and *Fragaria*. *Mei* has the same meaning [*v. supra*, 127]. *Piao* means also sedge grass [*v. infra*, 209].

[*V. supra*, 133, 127].

191.—的 *Ti*; 蕹 *I* (*hi*).

Kuo P'ao:—The fruit of the 蓮 *Lien* (Lotus flower, which is also represented in the accompanying figure). [*V. supra*, 101.]

192.—藟 *Kou*; 藟藟 *Shang lou*.

Kuo P'ao:—Same as 藟藟 *Lou huo*. It grows in low fields. The young plants are eaten. In Kiang tung the people cook them with fish.

[*V. infra*, 430, *Artemisia*].

E., 62, family 藟, sub-family 藟藟, bad figure of a young *Artemisia*.

193.—菊 *Lie*; 菊菊 *Pu lie*.

Kuo P'ao:—According to the *Pen ts'ao*, same as 石芸 *Shi yün*.

HING PING:—The *Pen ts'ao* says that it is of a sweet taste. Other names 豨薟 *Shi lie*, 顧喙 *Ku hui*.

P., XXI, 16, *shi yün*. A medicinal plant mentioned in the *Pie lu*, stem and leaves used. Not poisonous; sweet taste. The plant figured in the *Phon zo*, V, 22, sub. 菊 is an *Orobanchacea*.

E., 110, family 菊, without figure.

194.—藟藟 *Yao jao*; 藟藟 *Ki yün*.

Kuo P'ao:—According to the *Kuang ya*, this plant is now called 遠志 *Yüan chi*. It resembles the 麻黃 *Ma huang* (*Ephedra*). Red flowers; leaves pointed, yellow. Its top is called "small plant" (其上謂之小草).

HING PING:—It is a medicinal plant. In the *Pen ts'ao* it is also called 細草 *Si ts'ao* (fine plant), the leaves are called 小草 *Siao ts'ao* (small plant). T'AO HUNG-KING says that it resembles the *ma huang*, but is green.

The name of *Yüan chi* is now applied to the *Polygala*, *P. sibirica*, L., and *P. tenuifolia*, Willd., are common in North

China. *P.*, XIII, 21. The account given of the plant in the *Kuang ya* and by K'uo P'ao is absurd.

[*V. infra*, 443].

E., 133, family 遠志. The six figures may all represent varieties of *Polygala*.

S., I, 23, has three figures, copied in *E.*

C., 1557. *Sm.*, 175.

195.—萊 *Ts'e*; 刺 *Ts'z'*.

Kuo P'ao:—草刺針, the thorns or prickles of plants. In Kuan si they say 刺; in 燕 Yen (Chili Province) and northward, towards Ch'ao sien (Corea), they say 萊. See the *Fang yen*.

HING PING:—According to the *Fang yen*, other names for thorn are 梗 *keng* and 刺 *kui*. In 江湖 Kiang siang (Hunan) they say 棘 *ki*.

196.—蕭 *Siao*; 萩 *Ts'in*. (Some editions write 荻 *Ti*.)

K'uo P'ao:—Same as 蒿 *hao* (*Artemisia*).

The name *siao* occurs also in the *Shan hai king*. [*V. infra*, 435, *Artemisia*.]

E., 110, family 萩. The figure has no resemblance to an *Artemisia*. The difference from the figure of *Artemisia capillaris* in the Japanese illustrations to the Book of Odes 毛詩品物圖攷, p. 13, is very striking.

197.—蔣 *T'an*; 海藻 *Hai tsao* (sea-weed).

Kuo P'ao:—A medicinal plant, also called 海羅 *hai lo*; it grows in the sea and has the appearance of flowing hair. See the *Pen ts'ao*.

HING PING:—Another name found in the *Pen ts'ao* is 落首 *lo shou*. T'AO HUNG-KING explains:—It is found near some islands in the sea, is of a black colour, resembles hair. Large leaves resembling the 藻 *Tsao* [r. 401].

P., XIX, 26, 海藻 *hai tsao*, an edible seaweed.

Specimens of the *hai tsao*, obtained from Tientsin, and determined by Professor AGARDH (Sweden) and Prof. GÖR

(St Petersburg) proved to belong to *Sargassum siliquastrum*, Agardh. According to HEPBURN, *Japan Diet.*, 海羅 or *funori*, in Japan, is a kind of sea-weed used for glazing and starching.

E., 66, family 藻 [*v. supra*, 111].

S., 111, 13. *Sm.*, 5, Agar-agar.

198.—長楚 *Ch'ang ch'ü*; 桃苳 *T'ao (t'iao) i*.

Kuo P'o:—It is now called 羊桃 *yang t'ao* (sheep's peach), also 鬼桃 *kui t'ao* (devil's peach). The leaves resemble those of the peach tree; white flowers; seeds like wheat; (the fruit?) resembles a peach.

[*V. infra*, 493, *Actinidia*.]

E., 151, family 蓑楚. Figure may mean *Actinidia*.

Jap., 51, 52, differ. 獼猴桃 and 木天蓼 for *Actin.*

199.—藟 *Ling*; 大苦 *Ta k'u* (great bitter).

Kuo P'o:—It is now called 甘草 *kan ts'ao* (sweet herb); it is a creeping plant, leaves like those of the 荷 *ho* (*Nelumbium*), greenish yellow; the stem is red, has joints. Some say that the *ling* resembles the *ti huang* (*Rehmannia*).

The *kan ts'ao* is Licorice, *Glycyrrhiza*. [*V. infra*, 425].

Kuo P'o's account is absurd, but the ancient authors quoted in *P.*, XIIa, 1, give a correct description of the plant: leguminous with pinnate leaves, violet flowers, sweet root. *Ch.*, VII, 6, *kan ts'ao*, represents a *Glycyrrhiza* with echinate legumes. *Gl. globra* and *Gl. glandulifera*, which in Europe yield Licorice, have both been recorded from North China by our botanists (*Index Florae sin.*, 168).

Phon 20, V, 1-2, 甘草 figures a *Glycyrrhiza* with glabrous legumes. As far as I know, no *Glycyrrhiza* has been gathered by European botanists in Japan.

E., 160, family 甘草, with three figures of a *Leguminosa* differing only in the roots.

C., 587. *Sm.*, 136.

200.—**茅萐** *Fou i*; **馬島** *Ma si*; **車前** *Ch'e ts'ien*.

KUO P'Ö:—The *ch'e ts'ien* has large leaves and long flower spikes. It grows by waysides. In Kiang tung the people call it **蝦蟆衣** *hia ma i* (frog's coat).

V. *infra*, 439, *Plantago*, which plant is represented in the corresponding drawing of the *Rh ya*. The character 屮 means the sole of a shoe, and as the leaf of the *Plantago* resembles a sole, the plant received the above name. Written also 葎 *si*. This explanation is given in *P.*, XVI, 54.

E., 162, family **車前**, figure bad, whereas *S.*, I, 18, has a good one.

Sm., 172. *Pr.*, 181. *II.*, 20.

201.—**綸似綸** *Lun sz' lun* (*lun* similar to *lun*).

組似組 *Tsu sz' tsu* (*tsu* similar to *tsu*).

東海有之. It is found in the Eastern Sea.

KUO P'Ö:—*Lun* is a silken girdle worn by certain officers, *tsu* is a ribbon. The plant grows in the sea, is variegated, whence the name.

P., XIX, 24. LI SHI-CHEN refers this plant to the **昆布** *kun pu* or **綸布** *lun pu*, a large seaweed first mentioned in the *Pie lu*, and produced in the Eastern sea, near the coast of Corea. Drawing *Ch.*, XVIII, 12.

Amoen. exot., 833 **昆布** *Firome et Konbu*. *Fucus marinus* lanceatæ formæ, orgia longior, margine dentato. Rupibus adnascens in maris superficie fluctuat, totus genti post præparationem esulentus, quanquam coriaceæ substantiæ. According to THUNBERG, *Flora jap.*, 346, this is the *Fucus saccharinus*, L. or *Laminaria saccharina*, Lam. This seaweed, which attains an immense size, is brought in large quantities from the Manchurian coast to China, where it is largely used for food. Its popular name is **海藻** *hai ts'ai* (sea vegetable).

E., 74, family **昆布**, with figure of a large-leaved sea-weed.

Comp. supra, 197.

202.—帛似帛 *P'o sz' po* (*po* similar to *po*).

布似布 *P'u sz' pu* (*pu* similar to *pu*).

華山有之. It is produced on the Hua shan mountain.

Kuo P'o:—The above names are derived from the resemblance of the plant to 布帛 (pure white silk). It is said to be found on the Hua shan mountain (Southern Shensi).

203.—芄東蠶. Unknown to the Chinese commentators.

204.—繇馬 *Miao ma*; 羊齒 *Yang ch'i* (sheep's tooth).

Kuo P'o:—A hairy plant with small leaves resembling a sheep's tooth. In Kiang tung they call it 鴈齒 *Yen ch'i* (goose's tooth). It is used for reeling off silk (? 繅者以取繭緒).

205.—落 *Kuo*; 麋舌 *Mi she* (deer's tongue).

Kuo P'o:—The leaves resemble a tongue.

206.—藎拒胸. Unknown to the Chinese commentators.

207.—繁之醜 *Fan chi ch'ou* (ugly *Artemisia fan*, [*v. supra*, 12].

秋爲蒿. In autumn it becomes an *Artemisia hao*.

Kuo P'o:—The first name is given to the plant in spring, when it first begins to grow; in autumn it is 蒿 *hao*.

HING PING:—It is a kind of *Artemisia* (繁蕭蔚莪之類). Its smell and taste in spring are not the same as in autumn.

208.—芙 *Yao*; 薊 *Ki* [comp. 62].

其實薊 its fruit is called *ha* (*fu*).

Kuo P'o:—The tufted head at the top of the stem of the *yao* and the *ki* (thistles, *Cnicus*, *Carduus*) is called 薊 *ha*.

HING PING refers to 62 and 8.

209.—蘼 荇 *Piao k'ia* (ju); 茶 *T'u*.

森 蘼 *Piao p'iao*; 芳 *T'iao*.

KUO P'AO:—Other names for 茶 *t'u* and *t'iao*. *T'u* and *t'iao* have the same meaning.

HING PING refers to the *Shi king* [LEGGE, 234, v. *infra*, 365].

Comp. above 48, and *infra*, 210. The above names all refer to rushes or sedges.—HOFFM & SCHULTES, 537, 蘼 草 *Scirpus articulatus*, L.

210.—葦 *Wei*; 醜 芳 *Ch'ou t'iao*.

KUO P'AO.—This is 芳 秀 *t'iao siu*, the *t'iao* in seed.

HING PING explains *wei* by 蘆 之 成, the *lu* [see 213, reed] in grain. The *Shuo wen* explains 芳 *t'iao* by 葦 華 *wei* flowers.

Wei, same as *lu*, [213] is the common reed, *Arundo phragmites*, L. V. *infra*, 455.

E., 109, family 蘆, figure of a large *Graminea*.

S., IV, 38; *C.*, 768. *Sm.*, 171.

H., 253, *Phragmites Roxburghii*, Kth. *Jap.*, 1610, *Phr. communis*, Tr.

211.—葭 *Kia*; 華 *Hua*.

KUO P'AO:—Same as the 蘆 *lu* [*v.* 213].

212.—葦 *Kien*; 蘆 *Lien*.

KUO P'AO:—It resembles the 荻 *huan* (a reed, *v. infra*, 455] but is smaller, several feet high. In Kiang tung the name *kien* is usual.

HING PING writes 葦 蘆 *kien ti* (second character same as 荻 *v. infra*, 455).

213.—葭 *Kia*; 蘆 *Lu*.

KUO P'AO:—Same as *wei* [210].

Wei and *lu* both denote *Arundo phragmites* [*v. infra*, 455].

214. 菱 *T'an*; 蓴 *Wan*; 其萌蘖 its sprouts are called *k'ien* or *k'uan*.

KUO P'AO:—The *t'an* resembles the *wei* [210] but is smaller; it has a solid (not hollow) stem. It is a kind of 茭 *huan* [r. 212]. The name *k'ien* is now applied in Kiang tung to the sprouts of the *lu* (common reed, r. 213).

HING PING says (referring to 211-214):—Names of various reeds or rushes mentioned in the *Shi king*. The *wei* [210] when not yet ripe is called *kien* [212]. The *t'an* [214] is also called 荻 *ti*. In autumn when in full growth it is called 茭 *huan* (but FAN KUANG, on the contrary, says, *huan* is the *t'an* when it begins to grow). [V. *infra*, 455.]

215.—蒲 *Yā*; 葦 *Wei* (*jai*).

莖 *kuang*; 華榮 *hua yung* (beauty of flowers).

KUO P'AO:—The 釋言 *Shi yen* says that *kuang* is the same as *hua* (flower). The sprouts of herbaceous plants are called *wei*.

216.—卷施草 *Kuan shi tsao*; 拔心不死 *Pa sin pu sz'* [it does not die when its heart is pulled up].

KUO P'AO:—Another name of the plant is 宿莽 *su mang*, by which it is mentioned in the *Li sao* [r. *infra*, 418].

HING PING:—王逸 *WANG I* [Han dynasty], in commenting upon the *Li sao*, states that it is a plant which does not die in winter, and which in 楚 *Ch'u* (Hu kuang) is called *su mang*.

217.—荷 *Yāu*; 菱 *Kiao*.

KUO P'AO:—Now in Kiang tung the people call *kiao* the root-stock of the 藕 *ou* (*Nelumbium*), which is hollow inside.

HING PING:—*Yāu* or *kiao* is the edible root of a plant.

Nowadays the name *kiao* or *kiao pai* is applied to the young stalks of *Hydropyrum latifolium*. [V. *infra*, 350. Comp. also 38.]

218.—**葵** *Kai*; **根** *Ken* (root).

K'uo P'ao:—*Kai* is the popular name for **韭根** *kiu ken*, (root of *Allium odorum*).

Hing Ping takes *kai* to be a general name for roots of herbaceous plants, as do also the *Fang yen* and the *Shuo wen*.

219.—**攫蒙舍**. Unknown to the Chinese commentators.

220.—**華** *Hua*; **葵** *Hü* (*fu*).

K'uo P'ao:—In Kiang tung *hü* is another name for *hua* (flower).

221.—**華** *Hua*; **葵** *Hü*; **榮** *Yung*.

K'uo P'ao:—These terms explain themselves mutually. They all have the meaning of flower.

222.—**木謂之華**. The flower of a tree is *hua*.

草謂之榮. The flower of an herbaceous plant is *yung*.

不榮而實者謂之秀. No flowers, but fruits, is called *siu*.

而不實者謂之莢. No seeds, is called *ying*.

Other Chinese authors, who are followed by WILLIAMS in his Dictionary, define the character *siu* by grain in seed, which then bends gracefully. WILLIAMS translates the character *ying* by a flower whose fruit is not yet formed.

11.—釋木 *Shi mc.*—EXPLANATION OF NAMES OF TREES.

223.—栲 *T'ao*; 山榲 *Shan kia* (mountain *kia*).

KUO P'ao:—Now the same as the 山楸 *Shan ts'iu* (mountain *ts'iu* or *Catalpa*). [*V. infra*, 508.]

(Comp. also 290-292, where *kia* and *ts'iu* are stated to be varieties of the 槐 *huai* tree (*Sophora*). [See also 511.]

224.—栲 *K'ao*; 山櫟 *Ch'u* (mountain *ch'u*).

KUO P'ao:—The *k'ao* resembles the *ch'u*. It is of a whitish colour, grows in the mountains, whence the name. It is a kind of 漆 *ts'i* or varnish tree.

HING PING:—Popular names 櫟栲 *ch'un k'ao*, 栲漆 *k'ao ts'i*. *Shi king* quoted. [*V. infra*, 519.]

The *ch'u* is *Ailantus glandulosa*; the *k'ao* or *shan ch'u* may be a *Rhus*.

V. infra, 288.

225.—柏 *Po*; 栲 *K'a*.

[*V. infra*, 505, *Thuja*].

226.—榲 *Kia*; 榲 *I*.

KUO P'ao:—This is the 白榲 *Pai kia*; it resembles the 白楊 *Pai yang* (white poplar).

HING PING:—Its wood is moist.

In some editions of the *Rh ya*, and also in *K.D.*, the first character is written 榲 *twan*. This at Peking is a name for the Lime tree, *Tilia*, not mentioned in *P.* [Comp. also above 6.]

The 榲 *kia* tree is likewise not described in *P.*, but a rough figure of it, which is not sufficient for its recognition, is given in the *Kiu huang*, LIV, 36, and reproduced in

Ch., XXXIV, 21. The *kia* tree is mentioned by T'AO HUNG-KING [5th century] who in his note regarding Ginseng quotes a Korean poem in praise of the Ginseng, saying that the *kia* tree and the Ginseng have mutual sympathy. T'AO adds that the *kia* is a tree resembling the 桐 *tung* (*Paulownia*), growing very high and giving an extensive shade. [See *P.*, XIIa, 11, article 人參 *Jen shen*]. Reference is made to the *kia* tree in GROSIER's *La Chine*, II, 289. It is described in *K.K.F.P.*, LXXXI, 19, as a tree with large leaves collected together like a fan, the bark of which furnishes textile fibres fit for making fishing nets. The *Cheng te fu chi* reports the same with regard to the *tuau* tree or *tilia*. It seems that authors frequently confound the characters *kia* and *tuau*.

The above character 槐 *I* is also written 槐 and also read *T'ao*. [See *W.D.*, 911.]

227.—梅 *Mei*; 桃 *Nan*.

K'uo P'ao:—It resembles the 杏 *hing* (Apricot); is an acid fruit.

HING PING:—SUN YEN says:—In 荊州 King chon (Hupei) they call it *mei*, whilst in 揚州 Yang chon (Anhui, Chekiang) they say *nan*. It is mentioned in the *Shi king*.

[*V. infra*, 473, *Prunus Mume*.]

The above character *nan* is often confounded with 楠 *nan*, *L. turna nan mu*. [*V. infra*, 512.]

E., 205, family 梅, with two figures, one a *Prunus*, the other *Chimonantes fragrans*. 18 names are given, among them those *infra*, 237 and 244.

S., XI, 7. *Sm.*, 174. *C.*, 835. *P.*, XXIX, 11.

A., XV, 149, *Prunus domestica*, L., commonly termed 李.

E., 259, family 桃, with figure, probably of *Persea*, has also the names *mei* [*Shi*] and *nan* [*Rh. fr.*].

228.—桧 *Pi*; 杉 *Shan* (*sha*).

Kuo P'ao:—The second character to be pronounced 杉 *shan* (*sha*). It denotes a tree which resembles the 松 *sung* (*Pinus*) and grows in Kiangnan. Its wood is fit for ship-building, coffins, pillars; it is veined, does not decay.

P., XXXIV, 12, 杉 *shan* (*sha*). This character, another form of the *shan* in the *Rh ya*, is first met with in the *Pie lu* [5th century]. The name is also written 沙木 *sha mu*. The ancient authors say that this is a large tree yielding excellent timber and resin; leaves like needles, sharp pointed, but flattened, evergreen. It is common in Middle China. LI SHI-CHEN states that there are several kinds of the *shan* tree, one of them introduced from Japan. One kind has a red wood and is very tough and resinous; the white *shan* is of a looser structure, and when dry becomes beautifully veined.

The *shan* tree of the ancient Chinese authors is without doubt the *Cunninghamia sinensis*, R. Brown, a common and very valuable coniferous tree of Middle and Southern China. Comp. Mr. TH. SAMPSON's interesting note regarding this tree in *Notes and Queries on China and Japan*, 1868, p. 52. But it seems that nowadays the name *shan* in China is applied also to *Cryptomeria japonica*, Don., and perhaps to other coniferous trees. Dr. HENRY informs me that *Cryptomeria japonica* in Hupei, where it occurs wild, is one of the numerous 杉 *sha* trees of the Chinese.

In Japan, where *Cunninghamia sinensis* occurs only cultivated, the Chinese character 杉 denotes *Cryptomeria japonica*. See *Phon zo*, LXXIX, 19, 20; SIEB. & ZUCC., *Flora japon.*, I, 43, tab. 124; SIEBOLD, *Syn. plant. japon.*, 65.

In *Ch.*, XXXIII, 58, the coniferous tree represented under 杉 is neither *Cryptomeria* nor *Cunninghamia*. A good drawing of the latter is found there, fol. 60, *s.n.*, 沙木 *sha mu*.

E., 235, family 榲, with figure of *Torreya nucifera*, S. & Z., also called 野杉.

S., XI, 35; *P.*, XXXI, 10; *Sm.*, 220; *C.*, 297; *Jap.*, 2213.

E., 261, family 杉, the same two terms are quoted from the *Rh ya*.

S., VIII, 23, with bad figures of two distinct trees.

229.—榲 *Fei*; 榲 *Kia* [see 226].

KUO P'Ō:—A kind of 柚 *Y'u* (*Pumelo*, *Citrus decumana*, see 236). Fruit as large as a bowl; the rind from two to three inches thick; the flesh inside is like that of the 枳 *Chi* (*Citrus trifoliata*), of little flavour.

[*V. infra*, 487.]

E., 230, family 柚, and *E.*, 254, family 枳, no names from the *Rh ya*. [*V. infra*, 236.]

230.—榲 *Niu*; 榲 *I*.

KUO P'Ō:—It resembles the 榲 *Ti* [*r. infra*, 306, a plum tree]. Small leaves, when young fit for feeding cattle. Of its wood tires of wheels are made. In Kuan si they call it *niu tsz'* also 土榲 *t'u kiang*. [Regarding *kiang*, see 536.]

[*V. infra*, 544, *Ligustrum* ?]

E., 272, family 榲, without figure.

231.—榲 *Mou*; 木瓜 *Mu kwa*.

KUO P'Ō:—This fruit is of the size of a little melon, edible, of a sour taste.

[*V. infra*, 478, Quince, *Cydonia sinensis*.]

E., 280, family 木瓜, with a good figure.

S., XII, 24. *Sm.*, 181. *C.*, 866.

H., 295, *Pyrus Cathayensis*, Hemsl.

Jap., 1827, *Pyrus japonica*, Thbg., *Var. genuina*, Max.

1825, *Pyrus Cydonia*, L., is 榲. [*V. infra*, 480.]

232.—榲 *Liang*; 即來 *Tsi lai*.

KUO P'Ō:—The wood of the *liang* is fit for making tires of wheels.

HING PING:—The *T'ang Pen ts'ao* says:—The leaves of this tree resemble those of the 榲 *shi* (*Diospyros*), they grow two

together opposite; fruit small, globular like the 牛李子 *niu li tsz'* (*Prunus*), at first green, when ripe black. The wood is hard, the sap of it, when cooked, becomes red.

P., XXXVb, 20, 松楊 *sung yang* (pine poplar) or 棕子木 *Liang tsz' mu*. The first name is explained by the timber resembling that of the pine, the trunk that of the poplar. CH'EN TS'ANG K'U [8th century] says that the tree grows in Kiangnan. The figure given of the *liang tsz' mu* in the *Kiu huan*, LIV, 9, is worthless, only leaves figured; it is said there to grow in the mountains of Mi hien in Honan. The drawing representing the same tree, in *Ch.*, XXXV, 14, shows a tree with small, globular fruit. See also *W.D.*, 499, 棕 *lai*, and 525 *li ng*.

The *Phoa zo*, LXXXIV, 24, 25, figures under 松楊 or 棕棕, a tree not identified by FRANCHET, but Dr. GEERTS' *Japanese Woods* gives 棕 and 糙葉樹 (tree with rough leaves) as the Chinese names for *Aphananthe aspera*, Planch. *Ulmaceae* (*Homoio Celtis aspera*, Bl. *Prunus aspera*, Thbg.) This is also the *Celtis maku* of SIEBOLD, *Syn. plant. japon.*, 168: Folia ad levigandum lignum. Fructus edules.

This may also be the tree figured in *Ch.*

E., 272, family 棕, with figure of a tall tree.

Jap., 838, *Ehretia serrata*, Roxb., 松楊, which name is a synonym.

233.—樹 *Lie*; 榧 *Rh.*

K'uo P'o:—A tree resembling the 榧榧 *ku su* (an oak, *c.* 535) but of smaller size. Fruit like a small chestnut, edible. Now in Kiang tung the people call it 榧栗 *rh li*, (*rh* chestnuts).

[*V. infra*, 495, small chestnuts.]

234.—髡榧. Unknown to the Chinese commentators.

235.—穫 *Huo*; 落 *Lo*.

K'uo P'ao:—Cups can be made of the wood, which is white and hard grained.

HING PING:—某氏 says it is fit for making cups. The bark is soft and tough; it is good for wrapping up things.

[*V. infra*, 553, *Betula*.]

E., 252, family 榿. without figure.

236.—柚 *Yu*; 條 *T'iao*. See also 229.

Kua P'ao:—It resembles the 橙 *ch'eng* (coolie orange). It has a sour taste; is produced in Kiangnan. [The *Shuo wen* also says that it resembles the *ch'eng*.]

HING PING:—It is mentioned in the *Yü kung* of the *Shu king*, also in the *Lü shi ch'un ts'ün* [3rd century B.C.] The *T'ung Pen ts'ü* says the *yu* fruit has a thick peel of a sweet taste, whilst the peel of the *kü* or common orange is bitter. Its flesh resembles that of the orange. There are sweet and acid varieties of the *yu*. The acid *yu* is called 胡甘 *hu kan*. The *ch'eng* is not, as some people say, the same as the *yu*.

[*V. infra*, 487, *Pumelo*, *Citrus decumana*.]

237.—時 *Shi*; 英梅 *Ying mei*.

K'uo P'ao:—Same as the 雀梅 *ts'ü mei* (sparrow plum).

HING PING:—It is smaller than the *mei* (*Prunus mume*). According to *P.*, XXXVI, 33, this is the same as the 郁李 *yü li* or *Prunus japonica*. [*V. infra*, 474.]

238.—榿 *Yüan* (*hü-an*); 榿柳 *Kü k'üung*.

K'uo P'ao.—The character *k'üung* is unknown, but it is believed that it stands for 柳 *liu* (willow). The *kü k'üung* resembles the willow. Of the bark, by boiling it, a beverage is made.

The *Shuo wen* explains the character 榿 by 榿榿木 unknown to me; the first character is a palm, *chamærops*,

In *P.*, XXXVb, 20, the above names in the *Rh ya* are identified with the 欂 *kā*, a name which first appears in the *Pie lu* [5th century]. Confused description of the tree, which is also called 欂柳 *kā liu*. LI SHI-CHEN says it furnishes a dark red timber, good for making boxes. The *T'ung chi* [12th century] states that this tree is a sort of 榆 *yā* (elm); its seed-vessels resemble those of the elm, having the shape of small coins. The country people gather the leaves of this tree and use them as tea.

The *kā* tree figured in *Ch.*, XXXIII, 63, is, according to HENRY, *l.c.*, 247, *Pterocarya stenoptera*; it seems to me that the figure represents rather a *Rhus*.

SIEBOLD, *Syn. plant. æon. jap.*, 170, 欂 *Ulmus keaki* or *Zelkova keaki*, SIEB., *Planera japonica*, Miq. This tree is figured under the above Chinese name in *Phon zo*, I, XXXIV, 9, 10. It is also found in China. FORBES gathered it near the Tahu Lake (*Journ. Bot.*, 1876, 209.)

Comp. also GROSIER, *La Chine*, II, 356. The *kā liu* is mentioned as a tree of Manchuria in the Emperor K'ien LUNG's poem in praise of Mukden.

E., 263, family 柳, with good figure of a *Salix*.

檉 [*v. infra*, 527] is also given as a synonym.

Jap., 2396, *Zelkova keaki*, S., 檉. The figure to *P.*, XXXV, 20, agrees with *Zelk.*

Comp. *Sm.*, 232, Large Willow.

239.—栲 *Hā*; 柎 *Chu*.

Kuo P'ò :—Same as the 柎 *ts'o* tree (*Quercus*).

[*V. infra*, 534, *Quercus*.]

E., 236, family 橡, with figure of a *Quercus*.

240.—味 *Wei*; 莖著 *Ch'i ch'u*.

Kuo P'ò :—Refers to 149, *Schizandra*.

241.—蘿 *Ou*; 莖 *Tie* (*ch'i*).

Kuo P'ò :—It is now called 刺榆 *ts'z' yā* (thorny elm).

[*V. infra*, 530, *Hemiptelea*.]

Synonyms to *infra*, 263.

242.—杜 *Tu*; 甘棠 *Kan t'ang* (sweet t'ang).

KUO P'ò:—Now called 杜梨 *tu li*.

HING PING:—舍人 *SHE JEN* says the *tu* of a red colour is called 赤棠 *ch'i t'ang* or *kan t'ang*, the white one is simply t'ang [see 254]. *Shi king* quoted.

[*V. infra*, 482, *Pyrus*.]

243.—狄 臧 棹 貢 基. Unknown to the Chinese commentators.

244.—抗 *K'iu*; 梨 梅 *Ki (hi) mei*.

KUO P'ò:—The *k'iu* tree has the appearance of the *mei* (plum). Its fruit is of the size of the end of a finger, of a red colour, resembling a small 榛 *nai* fruit [c. 286]; edible.

LI SHI-CHEN in *P.*, XXX, 12, identifies this with the 山楂 *shan chet* or 山裡紅 *shan li hung*. It is described as a small, thorny tree with five lobed leaves and red, occasionally yellow, fruit resembling the 林檎 *lin kin* (crab-apple). It is edible.

The above names are applied in China to several species of *Crataegus* or hawthorn. The *shan li hung* of Peking is the red fruit of *Crataegus pinnatifida*, Bge., collected in the mountains and made into an excellent sweetmeat. See the drawings in the *K'iu huang*, LV, 8, and *Ch.*, XXXII, 39. According to HENRY, *l. c.*, 411, in Hupei *Cr. pinnatifida* is called *shan cha*.

In the *Phon zo*, LXIII, 16, 山楂 is *Crataegus cuneata*, S. & Z., and 羊 抗 子 *Cr. pinnatifida*.

E., 284, family 山 榎, with good figure of *Crataegus*.

C., 1082. *Sm.*, 77. *A.*, XV, 150.

Jap., 693, *Cr. cuneata*, S. & Z.

K'iu is also a synonym of 楊 梅 *E.*, 278, (*Myrica rubra*, S. & Z., *Jap.*, 1468), and of 梅 (*Prunus*) *E.*, 205, where *hi mei* also occurs among the 18 names given.

245.—**抖者聊**. Unknown to the Chinese commentators.

246.—**魄 P'ò**; **檳榔 Hī k'ò**.

K'uo P'ò:—The p'ò is a large tree with small leaves, and resembles the **檀 t'an** [*Corsulpinia* or *Dalbergia*, c. *infra*, 540]. It is frequently seen in Kiang tung.

E., 310, family **羣迷**, the figure resembles *Aucuba*.

Jap., 309, *Aucuba japonica*, Thbg., is called **桃葉珊瑚**.

247.—**桧 Ts'in (shen)**; **木桂 Mu kui**.

K'uo P'ò:—The southern people call it **桂 kui**. That sort with a thick bark is called *mu kui* (ligneous *kui*). The leaves of the *kui* tree resemble those of the **枇杷 pi pa** (*Eriobotrya japonica*), but are larger. White flowers. The tree is an evergreen and grows in the mountains.

HING PING:—In the *Pen ts'ao* it is called **牡桂 mou kui** (male *kui*).

[V. *infra*, 552, Cassia bark, *Cinnamomum Cassia*, Bl.]

E., 241, family **桂**, with figure and 10 names.

248.—**檣 Lun**; **無旄 Wu ts'z'.**

K'uo P'ò:—A kind of **檣 p'ien**. It resembles the **豫章 yū ch'ang** (*Laurus camphora*).

HING PING:—The *lun* yields an excellent timber. The *p'ien* and the *yū ch'ang* are large trees in the south.

In the *Pen ts'ao*, XXXIV, 39, the *lun* as well as the *p'ien* are given as synonyms for **鈞樟 tiao ch'ang**, which is a *Limnera* (*Laurineae*) [see *infra*, 513]. The *p'ien* is mentioned in one of Sz' MA SIANG JU's poems [2nd century B.C.] c. *infra*, 514.

E., 259, family **檣**, without figure.

249.—**楮 K'ü**; **楨 W'ei (k'ui)**.

K'uo P'ò:—It has swollen joints, is fit for canes, staves, etc. [V. *infra*, 554.]

E., 251, family **楮**, without figure.

250.—檉 *Ch'eng*; 河柳 *Ho lin* (river willow).

KUO P'Ö:—A small 楊 *yang* (poplar or willow) tree with a red stem. It grows on the borders of rivers.

[*V. infra*, 527, *Tamarix*.]

KUNG YING-TA attributes the explanation given by KUO P'Ö to 某氏. *Tamarix* does not resemble a poplar or a willow, but it is true that the bark of its branches is of a brown red colour. [See the drawing in SIEB. & ZUCC., *Flora japon.*, I., tab. 71.]

V. supra, 238; and 251.

251.—旄 *Mao*; 澤柳 *Tse lin* (marsh willow). [Comp. *infra*, 267.]

KUO P'Ö:—It grows in marshes.

252.—楊 *Yang*; 蒲柳 *P'u lin* (reed-mace willow).

KUO P'Ö:—It is good for making arrows. The *Tso ch'uan* calls it 董澤之蒲. [*V. infra*, 525, willow.]

E., 268, family 楊, with three figures, the first 白楊 of a *populus*. *Jap.*, 1737, *Populus suaveolens*, Fisch. II., 546. *Sm.*, 231, 232.

253.—權黃英 輔小木. Unknown to the Chinese commentators.

254.—杜 *Tu*; 赤棠 *Ch'i tang* (red *tang*).

白者棠. The white kind is (simply) called *tang*. [Comp. 242.]

[*V. infra*, 482, *Pyrus*.]

E., 233, family 棠梨, with figure of a *pyrus*.

255.—諸慮 *Chu lu*; 山櫟 *Shan lei*.

KUO P'Ö:—Now in Kiang tung *lei* has the same meaning as 藤 *t'eng* (a general name for woody climbing plants, *lianas*). It resembles the 葛 *ko* (*Pachyrhizus*) but is coarser and larger (longer).

The *lei* is also mentioned in the *Shan hai king*. The character is there written 藜. Kuo P'o explains it by *t'eng*, and adds that it is a kind of 虎豆 *hu tou* [see the next] or 狸豆 *li tou*.

P., XXIV, 25, 藜豆 *li tou* or 虎豆 *hu tou*, a cultivated leguminous plant. Drawing, *Ch.*, I, 36. The 藜豆 in Japan is *Mucuna capitata*, Wight. See *So moku*, XIII, 24. But this does not agree with the drawing in *Ch.*

E., 112, family 藤, with fourteen figures and 70 names.

E., 37, 6, family 豆, sub-family 藜豆, with figure probably of *Mucuna*. *Jap.*, 1462, *M. capitata*, Wight.

The figure to *P.*, XXIV, 25, differs.

256.—攝 *She* (*che*); 虎藜 *Hu lei*.

Kuo P'o:—It is now called 虎豆 *hu tou* (tiger's bean). It climbs on trees; its pods are covered with hairs and prickles. In Kiang tung they call it 機攝 *lu she*.

HING PING:—It is a kind of 葛 *ko* (*Pachyrhizus*). Large leaves. The seeds resemble those of the 藜豆 *li tou* (*Phaseolus Mungo*).

In *P.*, l. c., this is likewise identified with the *li tou* [c. 255].

E., 37, 6, a synonym. [*V. supra*, 255.]

257.—杞 *K'i*; 枸櫞 *Kou ki*.

Kuo P'o:—It is now called 枸杞 *kou k'i*.

[*V. infra*, 526, *Lycium*.]

258.—栲 *Y'au*; 魚毒 *Y'au tu* (fish poison).

Kuo P'o:—*Y'au* is the name applied to the fruit (or the seeds) of a large tree (大木子 *ta mu tsz'*; perhaps this is the name of the tree). It resembles the chestnut, grows in the southern countries. The bark (peel) is thick, contains a red juice which is used to preserve eggs and fruit.

The *y'au* tree is mentioned in the *H'u tu j'u* [3rd century, see *Botan. sin.*, I, 656]. 李善 *Li SHAN* [7th century] who

comments upon this panegyric of the Wu capital, says:—the *yüan* is a great tree; its bark is thick, bitter and harsh; they strip it off and dry it; it is of a red colour; a decoction of it is good for preserving fruit from spoiling. This tree grows in 豫章 *Yü ehang* (Kiangsi). Comp. *K.D.* and *W.D.*, 1135.

In the *Shuo wen*, the name *yü tu* (fish poison) is applied to the 芫 *yüan*, a *Daphne* [*v. infra*, 465]. But that is not a large tree.

259.—櫻 *Hui*; 大椒 *Tu tsiao*.

Kuo P'ao:—This is the 椒 *tsiao* tree. That kind with large fruits is called *hui*.

V. infra, 497, *Zanthoxylon*, Chinese pepper. This is represented in the figure of the *Rh ya*.

260.—桄 *Yü*; 鼠梓 *Shu tsz'* (rat's *Catalpa*)

Kuo P'ao:—It is a kind of 楸 *ts'iu* (*Catalpa*). In Kiang tung there is a tree called 虎梓 *hu tsz'*.

[*V. infra*, 510.]

261.—楓 *Feng*; 樞樞 *Che che*.

Kuo P'ao:—The *feng* tree resembles the 白楊 *pai yang* (white poplar). Leaves round and pronged. It contains a fragrant resin 楓香 *feng hsiang*.

HING PING:—The *Shuo wen* says:—The *feng* tree has thick leaves and pliable branches, which make it wave elegantly. The *T'ung Pen ts'ao* says:—The *feng* is a tall tree; large three-furcated leaves. It grows abundantly in 商洛 Shang and Lo (Southern Shensi).

P., XXXIV, 43; *Ch.*, XXXV, 1. The *feng* is the *Liquidambar formosana*, Hcc., a common tree in Middle and Southern China. See Mr. TH. SAMPTON'S interesting account of the *feng* tree in *Notes and Queries on China and Japan*, 1869, 4, 31. HENRY, *l. c.*, 102, states that at Hankow tea-chests are made from the wood of it.

E., 260, family 槭, with bad figure, a copy of *S.*, IX, 14.

Pr., 172. *Sm.*, 171, 205. *Jap.*, 1302, *Liquidambar Maximowiczii*, Miq.

C., 312, 1481, *Acer trifidum*, Hk. & Arn. *Jap.*, 36, 三角楓.

E., 260, has also the Indian name *Sardjarsa* among its synonyms.

232.—寓木 *Yü mu* (dwelling on trees); 宛童 *Wan tung*.

Kuo P'o:—The 寄生樹 *k'i sheng shu* (plant which dwells on trees), also called 葛 *niao*.

[*l. infra*, 449, Mistletoe, *Viscum*.]

263.—無姑 *Wu ku*; 其實夷 its fruit is called *i*.

Kuo P'o:—*Wu ku* is the same as 姑榆 *ku yü*. It grows in the mountains, leaves round and thick. The people strip off the bark and steep it; it is of an acrial taste and fragrant. This is called 無夷 *wu i*.

HING PING:—The *Pen ts'ao* has the names *wu i* and *wu ku*.

P. XXXVb, 33, 蕪莢 *wu i*. It is supposed there that the names in the *Rh yü*, 57 and 263, refer to the same plant, but 57 is an herbaceous plant (*Blitum*) and 263 a tree. The *Shuo wen* states that the 榎 *keng* tree is the same as the 山扮榆 *shan fen yü* (mountain elm, see 304), it has thorns, its fruit is called *wu i*. LI SHI-CHEN writes 榎, but that is a different tree (see 248, 514). He states also that of the *wu i* there are two kinds; one is large, the other smaller. The latter is the same as 榆莢 *yü kia* (seed-vessels of the elm tree).

E., 269, family 榆, figure probably of an *Ulmus*.

The figure to *S.*, IX, 6, is bad, but may be meant for an *Ulmus*. *C.*, 1554.

Jap., 2256, *Ulmus campestris*, Sm., 榆.

Jap., 2258, *Ulmus parvifolia*, Jacq., 榔榆.

244.—櫟 *Li*; 其實栲 its fruit is called *k'in*.

Kuo P'o:—有栲櫟自裏. This phrase, unintelligible to me, refers perhaps to the subulate scales of the cupule of the acorn, likened to a hedgehog.

HING PING :—*K'iu* means the capsule of the fruit. SUN YEN says that the fruit of the *li* tree is called 榲 *siang*.

[*V. infra*, 534, *Quercus*.]

265.—榲 *Sui*; 羅 *Lo*.

KUO P'Ö :—It is now called 楊榲 *yang sui*. The fruit resembles a pear, but is smaller, of a sour taste, edible. [*V. infra*, 483.]

Synonyms, *infra*, 301.

266.—榲 *K'io*; 荆桃 *K'ing t'ao*.

KUO P'Ö :—It is now called 櫻桃 *ying t'ao*.

HING PING :—The *Kuang ya* has 含桃 *han t'ao*.

[*V. infra*, 477, Cherry.]

267.—旋 *Mao* [Comp. 251]; 冬桃 *Tung t'ao* (winter peach)

KUO P'Ö :—The fruit ripens in winter.

E., 215, family 桃, with a good figure of *Prunus persica*.

The names of 267 and 268 are synonyms [*v. infra*, 470].

268.—榲桃 *Sz' t'ao*; 山桃 *Shan t'ao* (mountain peach).

KUO P'Ö :—The fruit is like the peach but smaller. The flesh adheres to the stone.

Perhaps *Persica Davidiana*, Carr., of the Peking mountains, which the Chinese call *shan t'ao*. Fruit small, not edible.

269.—休 *Hiu*; 無實李 *Wu shi li* (a plum tree which bears no fruit).

KUO P'Ö :—Another name is 趙李 *chao li*.

E., 220, family 李, with figure of a *Prunus*. *Jap.*, 1787, *Pr. triflora*, Roxb.

The names of 269, 270, 271 are all synonyms.

270.—榲 *T'ao*; 榲盧李 *T'ie lu li*.

KUO P'Ö :—It is now called 麥李 *mai li* (wheat plum).

HING PING :—Called wheat plum because the fruit ripens at the same time as wheat does.

271.—駮 *Po*; 赤李 *Ch'i li* (red plum).

K'uo P'ao:—A plum of a red colour.

272.—棗 *Ts'ao*; 壺棗 *Hu tsao* (pot jujube).

K'uo P'ao:—Now in Kiang tung the large jujube, pointed at the head, is called 壺 *hu* (pot) or 瓠 *hu* (calabash).

HING PING explains:—It has the shape of a pot.

This and the following names to 282, refer to varieties of the Jujube, *Zizyphus vulgaris*, Lam. [V. *infra*, 484.]

E., 223, family 棗, with two figures of *Zizyphus vulgaris* and of a thorny variety.

All the names from 272 to 282 and 5 more are synonyms.

S., XI, 17; *C.*, 1334, 1336, 1337. *Sm.*, 44, 83, 87, 115, 125. *H.*, 497.

273.—邊 *Pien*; 要棗 *Yao tsao*.

K'uo P'ao:—The fruit has a slender waist (子細腰). It is now called 鹿盧棗 *lu lu tsao*. The drawing represents a fruit contracted in the middle like the bottle-gourd.

274.—檮 *Tsi*; 白棗 *Pai tsao* (white jujube).

K'uo P'ao:—This is what is now called 棗子白熟 (white ripe jujube).

275.—檇 *Rh*; 酸棗 *Suan tsao* (sour jujube).

K'uo P'ao:—A small tree with sour fruits, mentioned by MENG Tsz' (MENCIVS). This is a spinous variety of *Zizyphus vulgaris*. [V. *infra*, 484.]

276.—楊徹齊棗. Unknown to the Chinese commentators.

277.—遵 *Tsun*; 羊棗 *Yang tsao* (sheep's jujube).

K'uo P'ao:—Small globular fruit of a dark purple (brown) colour. Now the people call it 羊矢棗 *yang shi tsao* (sheep's dirt jujube).

[V. *infra*, 484.]

278.—洗 *Sien* ; 大棗 *Tu tsao* (great jujube).

Kuo P'o :—There is now in Ho tung, in 猗氏縣 *I shi hien* (South-Western Shansi) a kind of *tsao* of the size of a hen's egg.

P., XXIX, 32, 大棗 mentioned in the *Pie lu*. This is probably the large jujube, now produced chiefly in Shantung, which the Chinese preserve with honey or sugar, and which is sold at Peking under the name of 蜜棗 *mi tsao* (honey jujube). It much resembles in appearance the date. [See also *infra*, 484.]

279.—煮棗. Unknown to the Chinese commentators.

280.—酸洩 *K'ue sie* ; 苦棗 *K'u tsao* (bitter jujube).

Kuo P'o :—Fruit of a bitter taste.

P., XXIX, 36, 苦棗. CH'EN SHI-LIANG [10th century] says that this is a small green jujube of a bitter taste, very common, but not much eaten by the people.

281.—皙 *Si* ; 無實棗 *Wu shi tsao* (a jujube tree without fruit).

Kuo P'o :—This variety does not produce fruit.

282.—還味 *S'uan (kuan) wei* ; 桲棗 *Jen tsao*.

Kuo P'o :—It is of a bitter, unpleasant taste.

283.—椶 *Ch'en* ; 梧 *Wu*.

Kuo P'o :—It is now called 梧桐 *wu t'ung*. [See also *infra*, 309.]

[V. *infra*, 516, *Sterculia platanifolia*.]

E., 237, family 桐, with good figure of *Sterculia platanifolia*.

Yung [*v. infra*, 309] is one of the synonyms.

E., 295, family 木槿 [*v. supra*, 6] gives *ch'en* as a synonym of *Hibiscus*.

284. 一椶 *P'o* (*p'o*); 枹者 *Fu* (*puo*) *che*. [Comp. also 308.]

K'uo P'o:—枹 means to grow thickly. [17. *infra*, 531, *Celtis*?] In the *Names of Japanese Timber Trees*, Home Department, 枹 is *Quercus crispula*.

Jap., 1839, *Quercus glandulifera*, Bl., 枹.

285. 一謂 樵 *Wei ch'eu*; 采薪 *Tsai s'u*; 采薪郎薪.

K'uo P'o explains these terms by 樵薪 faggots, fuel, to gather fuel.

286. 一棣 *Yeu*; 榷其 *Su ki*.

K'uo P'o:—The fruit of the *yeu* resembles that of the 柰 *nai*, is of a red colour and edible.

K'uo P'o, in explaining the name *yeu*, applied to a tree in the *Shan hai king*, says:—It is also called 連 *lien* [perhaps a mistake for *su*, *v. supra*]; its fruit resembles that of the *nai*, is red and edible.

I cannot say what the *yeu* tree was. As to the *nai*, it is also written 柰 [*v.* 244], this name is still in use and applied to a fruit which seems to be common in Middle China. WILLIAMS, *Diet.*, 613, calls it a kind of bullace or large yellow plum, sour yet edible. The character *nai* is found in the *Shao yao* and explained there: name of a fruit.

P., XXX, 15, has an account of the *nai*. It is mentioned in the *P'ie lu*. TAO HUNG-KING says:—This fruit is found in Kiangnan, but it is more plentiful in the Northern States, where the fruit is dried for food. It is, however, not profitable to man. It resembles the 林檎 *lin k'in* [crab apple, *v.* 301] but is smaller. LI SHI-JEN also says that the *nai* resembles the crab apple, but is larger. There are red, white and green varieties. It is grown especially in the Western Provinces. LI SHI-CHEN states farther that the Sanserit name for the *nai* is 頻婆 *p'iu p'o*, which latter name has also been adopted

in the Northern Provinces. According to STAN. JULIEN (*Méthode pour déchiffrer les noms sanscrits des lièves chinois*, p. 171) *pin p'o* is an equivalent of *cinbām*, which has been identified with *Begonia grandis*, a cucurbitaceous plant. Dr. EITEL, however, in his *Handbook of Chinese Buddhism*, gives 柰 as the Chinese equivalent for *malika* or *Jasminum*.

Ch., XXXII, 35, writes 柰 *nai* or 蘋果 *pin kuo*, and figures, it seems, a large apple. *Pin kuo* in North China is the common name for apple. Many years ago the late French bishop Mgr. DELAPLACE told me that in the Province of Chekiang the *nai* is a common fruit, and that it is neither a plum nor an apple, but a fruit peculiar by itself. In Japan this character is applied to the quince. *Aman. exot.*, 800, 柰, *dai*, *Malus cotonea*, fructu medioeri, rotundo, compresso, vulga *kara nas* (i.e., *Pyrus sinica*). Comp. also *Phon zo*, LXIV, 2, 柰; drawing not identified.

E., 221, family 柰, with good figure of *Pyrus Malus*, L. The names of the *Rô ju* not found.

The figures to *S.*, XI, 32, and *P.*, XXX, 15, and *Sm.*, 174, agree. *Sm.*, 127, *Kempferia*, *Alpinia*, etc.?

The Sanskrit name *p'in p'o* is mentioned as a synonym.

E., 285, family 林檎, with figure of a *Citrus*, and 花紅 among the synonyms.

Jap., 1829, *Pyrus Malus*, L., 林檎.

E., 123, family 茉莉, with figure of *Jasminum*, has 柰花 as a synonym.

287.—劉 *Liu*; 劉代 *Liu i*.

Kuo P'u:—A mountain tree. The fruit resembles a pear, is acid and sweet, the stone is hard. This fruit is brought from 交趾 Kiao chi (Cochin-China).

K.K.F.P., LXVII, 20:—The *liu* tree is mentioned in the *Nan fang ts'ao mu chuang* [3rd century]. It produces a fruit as large as a plum and of an acid taste; but preserved with honey it tastes well. The *K'ing yang I tsu chi* [*Botan. sin.*, No. 337] says that the *liu tsz'* is a tree growing in the

mountains of 交廣 Kiao kuang, 武平 Wu p'ing and 興古 Hing ku (all in Southern China); it flowers in the third month; the fruit, which resembles a plum, ripens in the eighth month and then becomes yellow; it is of an acid and sweet taste, has a hard stone.

288.—檇 Wai (*huai*); 槐大葉而黑 *Huai*, tree with large leaves and black.

K'RO P'Ō:—A variety of the 槐 *huai* tree with large black leaves is called *wai* (*huai*).

The 槐 *huai* is *Sophora japonica*, L. [V, *infra*, 546]. The *wai* is noticed in the *Shan hai king* as a tree with red fruit as large as a quince, which is eaten and considered strengthening.

P., XXXIV, 42, 檇香 *huai hiang*, also 兜婁婆香 *tou lou p'o hiang*. LI SHI-CHEN says:—A small tree, growing in the mountains of Middle China and used for fuel. Long, pinnate, green fragrant leaves, serrated, not unlike thistle leaves. The root resembles that of the *kou ki* (*Lycium*) but is larger; very fragrant when burnt. Ch., XXXIV, 10, the former names, also 槐香葉 *huai hiang ye* (*huai* with fragrant leaves). Rough drawing, taken from the *K'iu huang*, LIV, 22. Tree with pinnate leaves. Also Ch., XXXVIII, 3, 花香樹 *hua hiang shu*. HENRY, l. c., 131, says that this is the *Platycarya strobilacea*, S. & Z., in Hupei. This tree was first described and figured by LINDLEY in the *Journ. Hort. Soc.*, I, (1846) p. 150, under the name of *Fortunea sinensis*. It had been brought by R. FORTUNE from Chusan and Ningpo. See SIEB. & ZUCC., *Flora japon.*, II, 87, tab. 149. Phon zo, LXXXI, 14, 15, 檇香 *Platycarya strobilacea*.

E., 255, family 槐, with figure of *Sophora* and the names from the *Rh ya*.

E., 148, family 藿, with figure of a plant without flowers or fruit, has *Tou lou p'o hiang* as a synonym. *Jap.*, 1657, *Platycarya*

strobilacea, 化香樹. For this tree I received the name 栲 [*v. infra*, 519] from Ningpo, which is a synonym of *E.*, 253, family 栲 [*v. infra*, 518]. It is also a synonym of *E.*, 253, family 椿 [*v. infra*, 520]. The figures to both families are exactly the same. The names seem to be used for various tall trees with pinnate leaves. [Comp., *supra*, 224.]

289.—守宮槐 *Shou kung huai* (*huai* warden of the palace). 葉晝聳宵炕. As Kuo P'ao explains, this means that the leaves of the tree fold together in the day-time and expand at night.

It is not clear whether *Sophora japonica* is meant or another tree. I am not aware of a tree whose leaves fold together in the day and expand at night. Comp. *infra*, 546, regarding the *huai* tree in the audience court of the Chou dynasty.

290.—槐小葉曰 榲 *Kia*.

Kuo P'ao explains:—槐 *huai* is the same as 楸 *ts'iu*. A *ts'iu* tree with small leaves is called 榲 *kia* [see above, 223].

E., 240, family 楸, figure may mean *Rottlera* (*Mallotus*); about 10 species occur in China. Other names are 條 [*Shi king*], 栲 [*supra*, 223], 榲 [*infra*, 292], *Jap.*, 1926, *Rottlera japonica*, S. & Z.; *Jap.*, 16, *Acanthopanax ricinifolium*, S. & Z., 刺楸.

291.—大而榲 楸 *ts'iu*.

Kuo P'ao:—The old tree with a coarse bark is called *ts'iu*.

292.—小而榲 榲 *Kia*.

Kuo P'ao:—The small tree with a coarse bark is *kia*. The 榲 is mentioned in the *Tso ch'uan*. (In LEGGE's edition of the *Tso ch'uan* the character is written 榲 *kia*).

I must avow that the above definitions of the *Itu ya* [290-292] with respect to the names *huai*, *ts'iu* and *kia*, as well as Kuo P'ao's explanations, are unintelligible to me. It would seem that the *ts'iu* and the *kia* are considered to be varieties of the *huai*. [Comp. also *infra*, 508.] In the

dictionary *Cheng Tsz-t'ung* it is affirmed that 榲 is the ancient form for 榲. It is not stated whence this fact is derived. The *Shuo wen* says 榲 is the same as 榲. The *K.D.* and *W.D.*, 353, also take the characters 榲 and 榲 to be identical. Only the second is found in the modern editions of the Classics (MENCIUS, *Tao ch'uan*). The *Rh ya*, however, does not mean to identify them, for in 307 榲 *kie* appears as the name of a tree which has nothing to do with the trees noticed under 290 and 292, but seems to be the tea tree.

E., 240, family 榲, figure of a big tree with large palmate leaves. Other name 木王 the king of trees. *Jap.*, 538, *Catalpa Kämpferi*, S. & Z. S., VIII, 15.

There is confusion between *Catalpa* and *Rottlera*.

293.—椅 *I*; 梓 *Tsz'*.

Kuo P'o :—Same as the 榲 *ts'iu*. [*V. infra*, 508 *Catalpa*].

294.—榲 *I*; 赤棟⁸ *Ch'i ts'u* (red *ts'u*).

白者棟 the white *ts'u* is (simply) called *ts'u*.

Kuo P'o :—The red *ts'u* has small, forked, pointed leaves; its bark is irregularly broken. It grows in the mountains. Its wood is used for tires of wheels. The white *ts'u* is a large tree with round forked leaves.

[*V. infra*, 545.]

295.—終 *Chung*; 牛棘 *Niu ki*, ox thorn.

Kuo P'o :—Same as 馬棘 *ma ki*. It has coarse and long thorns.

The *Shan hai king* mentions a plant 牛傷 *niu shang* which Kuo P'o says is the same as *niu ki*.

In *P.*, XVIIIa, 31, the *niu ki* is identified with the 營實 *ying shi* or 薔薇 *ts'iang wei*, described as a very thorny

⁸ Some editions of the *Rh ya* have 棟 *su*, *W.D.*, 825. But according to the *K.D.* the correct reading is as above.

shrub which molests man and cattle. Leaves small, serrate; flowers white or pale red with yellow stamens; red fruit which contains hairy seeds like those of the 金櫻子 *kin ying tzu* (*Rosa hystrix*). Flowers and leaves used in medicine.

The *Kiu huang*, XLIX, 28, and *Ch.*, XXII, 16, figure under the above names a rose.

Phon zo, XXVII, 2, 薔薇 *Rosa multiflora*, Thbg. This is a common plant in China. [*Jap.*, 1922, 野薔薇.]

E., 271, family 棘, with figure of a large tree, certainly not a *Rosa*. According to description in the text it is a *Zizyphus*, thorny with small fruit. *E.*, 118, family 薔薇, with good figure of *Rosa indica*, L.

296.—灌木 *Kuan mu*; 叢木 *T'sung mu*. [*Comp. infra*, 334].

The meaning is, trees with dense foliage.

297.—瘿木 *Hui mu*; 苻婁 *Fu lau*.

Kuo P'o:—Disease in trees which causes woody knobs to form, out of which no branches grow.

298.—蕢 *Fen*; 藹 *Li*.

Kuo P'o:—A tree producing exuberance of fruit.

299.—抱遺木 魁癭

Kuo P'o:—Excrecences on the branches, roots, etc., of trees.

300.—械 *Ya*; 白桉 *Pai jui*.

Kuo P'o:—The *jui* is a small tree with dense foliage. It is provided with spines. The fruit resembles ear pendants, is of a dark red colour, edible.

[*V. infra*, 534.]

In *P.*, XXXVI, 28, the *yā* or *pai jui* is identified with the 蕤核 *jui ho*. LI SHI-CHEN says the character 梭 of the *Rh ya* has the same pronunciation as 蕤, and has in later times been substituted for the first. HAN PAO-SHENG [10th century] describes the *jui ho* as a tree with leaves like those of the *kou ki* (*Lycium*), but smaller and narrower. White flowers. The stem is provided with numerous small spines. The fruits are produced on the stem; they are red and resemble the fruits called *ru wei tse'* (*Schizandra*). They ripen in the fifth or sixth month, are edible; the people gather and dry them. Another author says it is a small tree, from 5 to 7 feet high, with spines on the stem.

The drawings in the *K'iu huang*, LV, 1, and in *Ch.*, XXXVII, 35, 37, sub *jui ho*, seem to represent a *Berberis*. [See also *Ch.*, XXXIII, 29.]

The drug sold at Peking under the name of 蕤仁 *jui jen* (same as *jui ho*, for *ho* and *jen* both mean kernel) is the small stone of a fruit, probably a *Prunus*.

The 械 *yā* of the *Shi king* [v. 534], however, is an oak.

E., 251, family 械, with figure of a small tree, probably a *Berberis*.

301.—梨 *li*; 山檣 *Shan li* (mountain *li*).

K'uo P'ao:—The common *li* or pear tree.

HING PING:—檣 is the wild pear, 梨 the cultivated tree.

The character *li* for the wild pear is not to be confounded with the similarly looking 檣 *k'in*, which likewise denotes a wild *Pyrus*. We find it always coupled with the character *lin* forest. *P.*, XXX, 16, 林檣 *lin k'in*. This name appears first, it seems, in the *Si king tsa ki*, compiled about the commencement of our era, and is applied to various wild pears and crab-apples with small, sour fruits. They are said by the ancient authors to grow in the Northern Provinces. *Ch.*, XXXI, 1, represents under this name a *Pyrus* with small fruit. [Comp. also *infra*, 482.]

Amæn. erot., 800, 來食² *Rai kin*, vulgo *Ruko*. *Pomus fructu pumilo austero*. According to THUNBERG, *Flora japon.*, 207, KEMPFER's *Rai kin* is *Pyrus baccata*, L.

Phou zo, LXIV, 3, 林檎 *Pyrus malus*, a red apple. SIEBOLD, *Syn. plant. œcon. jap.*, 350, identifies the same Chinese name with an apple, *Pyrus malus*, occasionally cultivated in Japan.

E., 231, family 梨, with figure of a pear-branch.

The two names of 265 are synonyms. *Jap.*, 1833, *Pyrus ussuriensis*, Max. About *lin k'in*, v. *supra*, 286.

302.—桑辨有葢, a mulberry tree 桑 *sang*, one half of which bears fruit is called 梔 *chi*.

K'uo P'ao explains that 辨 stands for 半 half.

HING PING :—The *Shuo wen* says 葢 is the mulberry fruit. 舍人 explains the above phrase of the *Rh ya* as I translated it. He adds that the other half of the tree has no fruit.

Sang is the common name of the mulberry tree [*v. infra*, 499]. But *chi*, according to the ancient Chinese botanists, is not a mulberry. The *Shuo wen* says that it is the fruit of a tree, used as a dye. *P.*, XXXVI, 21, 梔子 *chi tsz'*. Mentioned in the *Pen ts'ao king*. The ancient authors describe it as a tree from 7 to 8 feet high, with thick leaves. White fragrant flowers in the second or third month. The fruit has angles, resembles the 阿子 *ho tsz'* (fruit of *Terminalia Chebula*), is used for dyeing a yellow colour. *Ch.*, XXXIII, 43, figures under the above name a *Gardenia*. Comp. HANBURY, *Science Papers*, 241, *Gardenia florida*, figure of the fruit.

Phou zo, LXXXVII, 9-12 梔子, *Gardenia florida*, L., and other species.

² This name in *P.* is given as a synonym for *lin k'in*. It literally means "the birds come." LI SHI-CHEN explains it, following an ancient author, by the fact that birds are very fond of the fruit of this tree.

E., 302, family 梔子, with good figure of *Gardenia florida*, flower and fruit.

S., XII, 18. *H.*, 64. *C.*, 139, 512. *Jap.*, 991.

303.—女桑 *Nā sang* (women's mulberry) 榿桑 *I sang*.

Kuo P'o:—This is the *sang* or mulberry tree. The small variety with long branches is called *nā sang*. [*v. infra*, 499].

The Chinese mulberry is *Morus alba*, L., of which many varieties are cultivated. Several varieties of the same species are figured in the *Phon zo*, LXXXVI, 14-20. There is also the 女桑 18, 19, *M. alba* foliis lobatis, dissectis.

304.—榆 *Yū*; 白粉 *Pai fen*.

Kuo P'o:—This tree flowers early (in spring) and then produces 莢 *kia* fruits [*v. infra*, 469]. Its bark is white [*v. infra*, 528].

The *yū* tree is also mentioned in the *Shan hai king*. It is the elm, *Ulmus*. There are several species of the elm in the North of China, the most common of which in the Peking plain is the *U. pumila*, Pall. This is an improper name founded by PALLAS upon shrubby specimens gathered in Dahuria. At Peking it forms a stately, tall tree. MAXIMOWICZ considers this to be only a variety of our common *U. campestris*. Another species, with large leaves and fruits, *U. macrocarpa*, Hce., grows in the Peking mountains. In South China this genus is represented by *U. parvifolia*, Jacq., which is found also in Japan. In the Peking plain *U. pumila* grows very rapidly. The elm is much valued in North China for its timber, which is variously used, and especially for building carts. A nourishing white meal, containing mucilage, is obtained from the thick inner bark of the tree, much used for food by the mountain people. The same enters also into the composition of the so-called "joss-sticks" (incense sticks) burned in Buddhist temples. The fruit is used as a medicine.

P., XXXVI, 30, 榆 *yü*. All the ancient authors quoted by LI SHI-CHEN speak of the white, mucilaginous meal obtained from the bark and used for food. It is called 榆麪. The fruits (莢) are said to resemble Chinese copper coins. In ancient times the people used to gather these fruits and boil them with rice.

The *Kin huang*, LVI, 17, under 榆銀樹 *yü ts'ien shu* (elm coin tree) represents an elm tree in fruit. The flat, orbicular, membranaceous fruit of the elm bears indeed some resemblance to Chinese copper coins. *Ch.* XXXIII, 21, figures only the leaves of the tree.

The name *pai jen* for the elm in the *Rh ya* may perhaps be derived from 白粉 *pai fen*, white meal.

Phon zo, LXXXV, 1, 2, 榆 *yü*, *Ulmus campestris*.

Ulmus parvifolia is figured in the same Japanese work. *U.*, 4, under the Chinese name 榔榆. According to HENRY, *U.*, 217 *U. parvifolia* in Unpei is known under the same Chinese name, 榔榆.

[*U. supra*, 263.]

305.—唐棣 *T'ang ti*; 移 *I*.

K'uo P'o:—It resembles the 白楊 *pai yang* (white poplar). In Kiang tung it is called 夫移 *fu i*. [*U. infra*, 475, *Prunus*.]

E., 302, family 唐棣, figure of a tree with large acuminate leaves.

One synonym given by an author in the text is 雀梅. *Sm.*, 58, *Cerasus communis*. *E.*, 205, [*v. supra*, 227, *infra*, 512], which may refer to *Prunus pseudocerasus*.

306.—常棣 *Shang (ch'ang) ti*; 棣 *Ti*.

K'uo P'o:—The *ti* tree grows in the mountains. Its fruit resembles the 櫻桃 *ying t'ao* (cherry); is edible. [*U. infra*, 476, *Prunus*.]

E., 280, family 郁李, with a figure like *Cerasus*. *Ts'ieh mei* is mentioned as a synonym.

307.—攪 *K'ia*; 苦茶 *K'u t'u* (bitter *t'u*).

K'uo P'o:—A small evergreen tree resembling the 梔 *chi* (*Gardenia*). A beverage is made from the leaves by boiling. Now the earliest gathering is called 茶 *t'u*, the latest 茗 *ming*. Another name for the plant is 蔎 *ch'uan*. The people of 蜀 *shu* (Szech'uan) call it *k'a t'u*.

K'uo P'o has evidently the tea-plant in view. The character 茶 *t'u*, which has so many meanings in the Classics, may also have been a name for tea. Besides this it is proved that the character 茶 *ch'a*, now in use to designate tea, has arisen out of the similar looking character 茶 *t'u*. See regarding tea and its history, *P.*, XXXII, 22, under 茗 *ming* or 茶 *ch'a*, and *K.K.F.P.*, XVIII-XXI.

YEN SHI-KU, an author of the 7th century, who commented upon the History of the Earlier Han [B.C. 202-A.D. 25], notices that the change of the character 茶 *t'u* into 茶 *ch'a*, when applied to the tea-plant, took place in this period. Thus the name of the city of 茶陵 *T'u ling hien* was then changed into 茶陵 *Ch'a ling hien*, nowadays *Ch'a ling chou* in Hunan. This is confirmed by the Chinese Geogr. Dictionary, *Li tai ti li chi*, etc., X, fol. 26b. *Ch'a ling* is mentioned in the *Ch'a king* [a treatise on the tea-plant, 8th century] among the tea-producing districts. The character *ch'a* for tea was not in general use before the publication of this treatise.

The *Shuo wen* explains the character 茗 *ming* by 茶芽 *t'u ya* (buds of the *t'u*, or tea-leaf). The 茗菜 *ming ts'ai* (*ming* [or tea] vegetable) is mentioned in the *Yen tsz' ch'un ts'iu*, written some centuries B.C. [*Botan. sin.*, I, 1092] as an article of food at the time of YEN YING, who was a contemporary of Confucius. We read in the *Shi shuo* [5th century, see *Botan. sin.*, I, 729] that WANG MENG, father-in-law of the Emperor AI TI, in the middle of the

4th century, was very fond of drinking tea (茶). He used also to set this beverage before his friends who came to visit him, but they found it too bitter, and generally declined, feigning some indisposition.

From the above translated ancient records and many others, which it would be too long to quote, it appears that the use of tea in some parts of China was known to the Chinese in early times, but it was not before the 6th or 7th century that its use as a beverage became common among all classes. The *Ch'a pu*, another treatise on tea, published between the 10th and 13th centuries, states that in the reign of the Emperor WEN TI of the Sui [A.D. 589-605] a Buddhist priest first recommended the boiled *ning* leaves as a medicine to the Emperor, who suffered from head-ache.

KUO P'Ō mentions 薺 *ch'uan* as one of the ancient names for tea. According to the ancient dictionaries *T'ei yün* and *Lei pien* [11th century] this term denoted the late and old leaves of the tea-plant.

In the above-mentioned *Ch'a king*, 設 *she* is given as a name for tea, referring to the third gathering. There is a passage 蜀西南人茶曰設, the people in the south-west of Shu call the tea "she," which is attributed to YANG HIUNG (YANG CHI-KI), who lived in the 1st century B.C. [See *Botan. sin.*, I, 106]. The *Shuo wen* defines the character *she* as fragrant herb.

Regarding the character 榘 as a substitute for 榘, see above, 292.

E. has several volumes devoted to 茶, not in the botanical portion of the work, but under "Administration of Government," 經濟, and there, under the heading of "National Economy," 食貨, 284-296. All the names can be found in chapter 288.—*Sm.*, 212.

308.—檉櫟 *Sh p'ŏ*; 心 *Sin*. [Comp. also 281].

KUO P'Ō:—This is the same as the 榲櫟 *hu su*.

HING PING:—某氏 reads *p'a su* (instead of *su p'a*). Name of a timber tree in Middle China. [V. *infra*, 535, *Quercus*].

E., 236, family 櫟, with figure of a tree, probably a *Quercus*.

Jap., 1837, *Quercus dentata*, Thbg., 櫟.

309.—桑 *Yung*; 桐木 *Tung mu*.

Kuo P'ao:—Same as 梧桐 *wu tung* [which is *Sterculia platanifolia*, v. *supra*, 283].

This is an erroneous identification by the Chinese commentator. [V. *infra*, 515]. The *tung* tree is *Paulownia*.

310.—欂櫨木 *Chan mu*; 干木 *Kan mu*.

Kuo P'ao:—Same as 欂櫨木 *kiang mu*. In Kiang tung it is called 木駱 *mu ko*. [Vide *infra*, 536, *Quercus*.]

311.—檉桑 *Yeu sang*; 山桑 *Shan sang* (mountain mulberry).

Kuo P'ao:—It resembles the *sang* (cultivated mulberry). The wood is fit for making bows and shafts of carriages. [V. *infra*, 500.]

The wild mulberry tree in the Peking mountains is *Morus alba*, L., var. *mongolica*. It is distinguished by its large membranaceous five to seven lobed leaves. The apex of the leaf is prolonged into a long acumen. The teeth of the margin also show long points.

According to Dr. GEERTS' *Japanese Woods*, 檉 in Japan is *Morus indica*, L. See also *Phun zo*, LXXXVI, 14, 15, 山桑.

E., 245, family 桑. The names are mentioned as synonyms.

312.—木自斃 trees that die of themselves [are called] 神 *shen*.

313.—立死 a dead [tree] remaining erect in the ground is 樗 *tz'z'*.

See LEZUGE's *Shi king*, 449.

314.—斃者 a dead [tree] is called 斃 *I*.

See LEGGE's *Shi king*, 449.

315.—木相磨 branches of trees rubbing against each other [K'ro P'ō] is 櫟 *I*.

316.—櫟 *Tso*; 櫟 *Ts'in*.

K'ro P'ō:—The rough, coarse bark of a tree.

317.—梢 *Shuo*; 梢權 *Shuo chao*.

K'ro P'ō:—A branchless tree.

318.—權 *Tsung* 松葉柏身 *Sung ye po shen*, leaves of the *tsung* (pine tree), trunk of the *po* (*Thuja*).

K'ro P'ō:—The wood of this tree is now used for the building of temples.

尸子 *SHI Tsz'* says:—The rats (thieves) know well that the *tsung* timber is better than that of the *tsung* and the *po* (pine and *Thuja*).

In the *K.K.F.P.*, LXXI, 34, is a short and obscure account of the *tsung* tree. It is said to be a tall, coniferous tree. The greenish yellow fruit is first of a sour, harsh taste, but after hoar frost becomes edible.

W.D., 1025, identifies the *tsung*, arbitrarily, it seems, with the larch or spruce, *Larix orientalis*, which latter is an old name [TOURNEFORT] for the Cedar of Lebanon.

SIEBOLD, *Syn. plant. japon.*, 58, 權 *Abies Momi*, Lignum subtilitatem et candorem quæsitum. This is *Abies firma*, S. & Z., [*Jap.*, 4]. *Flora japon.*, II, 15, tab. 107 (same as *A. bifida* and *A. homolepis*, S. & Z., according to FRANCHET). *Phon zo*, LXXVIII, 3.

319.—檜 *Hui*; 柏葉松身 *Po ye sung shen*, leaves of the *po* (*Thuja*), trunk of the *sung* (pine). [*V. infra*, 506, *Juniperus*.]

320.—句如羽 curved and bent like the wings of a bird, are called 喬 *k'iao*.

K'uo P'o's explanation says:—Trees with branches curved like wings. See LEGGE's *Shi king*, 16, 138: *k'iao*, also written 橋, lofty trees with few or no branches low down.

321.—下句曰 (with branches) curved downwards, is called 枅 *kin*.

上句曰 curved upwards is 喬 *k'iao*.

HING PING says that *k'iu* is the same as 欂櫨 *kin mu* in the *Shi king*, defined by LEGGE, 10, as trees with curved branches drooping down to the ground and easily laid hold of by creepers.

322.—如木楸曰 (with branches) like those of the *ts'iu* tree [291] is 喬 *k'iao* [v. 321].

323.—如竹箭曰 like the *Chu tsien* bamboo [see 174] is called 苞 *po*.

K'uo P'o:—The luxuriant growth of the 簕 *siao* bamboo [174] is meant.

324.—如松柏曰 like the *sung* (pine) and the *po* (*Thuja*) is 茂 *mon*.

K'uo P'o:—Luxuriant foliage. *Shi king* 松柏之茂 [LEGGE, 116].

325.—如槐曰 like the *huai* tree (*Sophora*) is 茂 *mon* [see the preceding].

326.—祝州木髦柔英. Unknown to the Chinese commentators.

327.—槐棘 the *huai* (*Sophora*) and the *ki* (jujube) are 醜喬 *ch'ou k'iao*.

This term refers also to the disposition of the branches. Kuo P'o explains 枝皆翹竦. The character 醜, which is found also in 328-330, means disgraceful, ugly.

328.—桑柳 the *sang* (mulberry tree) and the *lin* (willow) are 醜條 *ch'ou t'iao* (ugly branches).

Kuo P'o explains that dropping down branches are meant.

329.—椒櫟 *Tsiao sha*; 醜菜 *Ch'ou k'iu*.

Kuo P'o:—*K'iu* is the fruit of the 莢 *yā* growing in clusters. In Kiang tung they call it 菜櫟 *k'iu sha*. It resembles the 菜萸 *chu yā*, but is smaller. It (*i.e.*, the fruit) is of a red colour.

HING PING:—Li SŪN says that *sha* is the same as *chu yā*.

The *Shuo wen* says, the *sha* resembles the *chu yā*. It is produced in 淮南 'Huai nan (Anhui). *Tsiao* is *Zanthoxylon* [*see* 259].

Regarding *chu yā*, *see infra*, 498, *Boyauia* and *Zanthoxylon*.

E., 249, family 樞. Figures of three different shrubs. *Sha* and *chu yā* are synonyms.

330.—桃李 the *t'ao* (peach) and the *li* (plum) are 醜核 *ch'ou ho*.

Kuo P'o:—子中有核人. It seems to me that he means to say: inside the fruit is the stone with the kernel (人 for 仁).

331.—瓜曰華之 the *kua* (gourd) is called *hua* (flower).

桃曰膽之 the *t'ao* (peach) is called *tan* (liver).

棗李曰堂之 the *ts'ao* (jujube) and the *li* (plum) are *t'i*.

楸梨曰鑽之 the *cha* (*Crataegus*) and the *li* (pear) are called *tsuan*.

K'uo P'ao says that the above names are selected terms for edible [fruits] 皆啖食治擇之名. The *cha* is a sour, astringent fruit resembling a pear. It is mentioned in the *Li ki*. [V. *infra*, 479.]

I confess that I am not able to explain the sense intended by the authors of the *Hk ya*, in adding the character 之 to the above phrases. With regard to 寔 *ti*, WILLIAMS, *Dict.*, 62, says:—The stem or peduncle of a fruit, especially of the date and pear. *Tsuan* means "to bore."

332.—小枝上緣爲喬.

333.—無枝爲檄. A branchless tree is called *hi*.

334.—木簇生爲灌. A tree with dense foliage is called *kuan*. [V. *supra*, 296.]

CHAPTER II.

PLANTS MENTIONED IN THE *SHI KING*, THE *SHU KING*,
THE *LI KI*, THE *CHOU LI* AND OTHER
CHINESE CLASSICAL WORKS.

I.—*Cereals*.

335.—The character 穀 *ku* (written also 穀) for Cereals or Grain, is frequently met with in the classical and other ancient Chinese writings. The *Shuo wen* explains it :—generic term for the hundred (*i.e.*, all sorts of) grains. Whilst Western nations understand by cereals exclusively certain gramineous plants cultivated for their edible grains, which constitute the chief food of man and beast, the early Chinese writers extend the meaning of the character *ku* to some other cultivated plants, as beans, hemp, etc. They variously distinguish five, six or nine kinds of grain.

The term 五穀 *wu ku* or five kinds of grain seems to refer to the oldest classification of grain. It is attributed to the Emperor SHEN KING. The ancient commentators enumerated these five kinds as follows :—

- 1.—稻 *tao*, Rice.
- 2.—麥 *mai*, comprising Wheat and Barley.
- 3.—稷 *tsi*, *Panicum miliaceum*, the common Millet.
- 4.—黍 *shu*, *Panicum miliaceum*, glutinous variety.
- 5.—菽 *shu*, the Soy bean, *Soja hispida*.

Some commentators have 粱 *liang*, *Setaria italica*, instead of *tsi*, others substitute 麻 *ma*, hemp, *Cannabis sativa*, for *tao*, rice.

MENCIUS says [LEGGE, 297]:—Of all the seeds the best are the *wu ku*, the five kinds of grain. *Ibidem*, 318:—In Mih (barbarian tribes in the north) not all the five kinds of corn are grown. It only produces the millet, *shu*.

We find the term *wu ku* again in the *Li ki*, I, 272. LEGGE translates:—the five esculent plants. *Ibidem*, I, 121:—LEGGE translates the same term *wu ku* by “the five kinds of grain,” and, I, 291, by “different grain.” *Ibidem*, I, 307:—LEGGE has “the five grains.” In this case the Chinese text of the *Li ki* has 五種 *wu chung*, the five seeds. The same term is found in the *Chou li*, II, 269 [BIOT’s translation]:—Province de 豫州 Yu tchou (Honan). Les cultures qui lui conviennent sont les cinq espèces de semences 其穀宜五種.

The ancient Chinese term “the five kinds of grain” is also usual in Japan. We read in *Amoen. exot.*, 834, under 米:—*come*, *Oryza* in genere: *quinque grana Japoniis go koky* secundum excellentiam dicuntur: *come*, *Oryza*; *o muggi*, *Hordeum*; *ko muggi*, *Triticum*; *daidsu*, *Phaseoli facie Lupini* (*Soja hispida*); *sjodsu* seu *adsuki*, *Phaseoli vulgaribus similes* (*Phaseolus radiatus*).

In the *Chou li* other classifications of the cereals also occur. We read in BIOT’s translation, I, 70:—

L’intendant des mets du palais (膳夫) est proposé aux substances végétales, boissons, viandes assaisonnées, etc. . . . Pour les substances végétales on emploie les six sortes de grains 六穀 (*liu ku*).

Commentaire A. (CHENG Sz’ NUNG):—

- 1.—稌 le riz [*v. infra*, 337].
- 2.—黍 le millet, *chou* [*v. infra*, 341].
- 3.—稷 le millet, *tsi* [*v. infra*, 343].
- 4.—粱 le gros millet, *liang*, *Holcus* [*v. infra*, 344, *Setaria italica*].
- 5.—麥 le blé, *me* [*v. infra*, 339].

- 6.—菰 le grain de la plante aquatique, *kou* [*v. infra*, 350, *Hydropyrum*].

In another chapter of the *Chou li*, I, 26, we have 九穀 *kiu ku*, the nine kinds of grain:—

Les cultivateurs des trois genres produisent les neuf espèces de grains.

Commentaire A. (CHENG SZ' NUNG):—

- 1.—黍 le millet *chou*, *Milium globosum* [the *shu* is *Panicum miliaceum*, var. *glutinosa*, *v. infra*, 341].
- 2.—稷 le millet *tsi*, *Holcus sorghum* [the *tsi* is the common *Panicum miliaceum*, *v. infra*, 343].
- 3.—秠 riz qui produit une liqueur fermentescible [this is a glutinous variety of *Setaria italica*, but sometimes this character refers to glutinous rice, *v. infra*, 348].
- 4.—稻 *tao*, le riz en général.
- 5.—麻 le chanvre.
- 6.—大豆 le grand *teou*, *Dolichos* [this is the soy bean, *v. infra*, 355].
- 7.—小豆 le petit *teou*, pois [*Phaseolus radiatus*, *Ph. Mungo*, *v. infra*, 356].
- 8.—大麥 le grand *me*, l'orge.
- 9.—小麥 le petit *me*, le blé.

The Commentator B. (CHENG HÜAN) substitutes for (3) the character 梁 (*Setaria italica*) and for (8) the character 菰 (*Hydropyrum*).

E., 23, 24, 禾穀, treat of Cereals in general.

E., 25-28, family 稻 of rice [*v. supra*, 71]. *E.*, 29, family 梁, *Setaria italica*, and family 稷, with figure probably of *Panicum glaucum* [*v. supra*, 27]. *E.*, 30, family 黍, *Panicum miliaceum*. *E.*, 31, family 粟 [*v. infra*, 347], and family 秠 [*v. supra*, 28]. *E.*, 32-34, family 麥 *Triticum* and *Hordeum*. Family 雀麥 [*v. supra*, 32] to which are appended 燕麥 [*v. supra*, 32, 151] *Brachypodium sylvaticum*, and 蕎麥, *Fagopyrum*.

Jap., 1098, *Hordeum vulgare*, L., 大麥.

Jap., 2112, *Sorghum saccharatum*, Pers., 蜀黍.

Jap., 936, *Fagopyrum esculentum*, Muench. 蕎麥.

Jap., 371, *Brachypodium sylvaticum*, Roem. & Schult., 燕麥.

336.—The character 禾 *hu*, another general term for cereals, occurs frequently in the Classics. The *Shuo wen* explains it by 嘉穀 excellent corn. The *Kuang ya* says *ho* is a term for growing ripe plants of millet and rice. CHU HI explains that it is a general name for growing grain in stalks.

LEGGE, in the *Shi king*, 232, 469, says that *ho* means growing grain, especially paddy (rice). *W.D.*, 251, *ho*=growing grain, especially paddy in the Southern Provinces and wheat in the Northern; grain, corn.

337.—Among the cultivated plants which furnish cereal food to the Chinese, *Rice* takes the most important place. It was cultivated in China from a very early period and is frequently noticed in almost all the ancient classical works under the name of 稻 *tao*, which is still in use.

W.D., 868, says that *tao* means rice when growing in the field, paddy, and [590] that rice after it is hulled is called 米 *mi*. LEGGE translates *tao* by rice in the plant, paddy, also unhulled rice.

Li ki, I, 117 :—According to the rules for all sacrifices in the ancestral temple, *tao*, paddy, is called 嘉蔬 *kia shu* (the admirable vegetable). I, 226, *tao*, unhulled rice, presented by the common people, in winter, for the sacrifice to the spirits of the land. *Ibidem*, I, 295 [*Yue ling*] :—[Last month of autumn, the Son of Heaven eats dog's flesh with rice. *Ibidem*, I, 459, 460 :—Rice used for food by the common people¹⁰ and must made of rice.

¹⁰ *Li ki*, I, 459. LEGGE's translation. My observations in brackets.

Of grain food there were :—millet [黍 *r. infra*, 341, *Panicum miliaceum glutinosum*], the glutinous rice [*sic*] [稷 *r. infra*, 343, *Panicum miliaceum*], rice (稻), maize [粱 *r. infra*, 344, *Setaria italica*], the white millet (白黍), and the yellow maize [黃粱 *r. infra*, 244, variety of *Setaria italica*], cut when ripe or when green.

Chou li, I, 366 :—稻人 *tao jen*, superintendent of the cultivation of rice. II, 268, 270, 273, 275 :—Rice produced in various parts of China.

Shi king, 184 :—We cannot plant our rice and maize [*r. infra*, 344], how shall our parents get food? 231 ["Life in Pin"] :—In the tenth month they reap the rice. 379 :—The millet, the rice and the maize will awake the joy of the husbandmen. 416 :—How the water from the pools flows away to the north, flooding the rice-fields! 622 :—Hor Tsi [*r. infra*, 343] taught the people how to sow and to reap rice and other cereals.

338.—稌 *tu* is another ancient name for rice, met with in the Classics. LEGGE and WILLIAMS translate *tu* by glutinous rice, good for making spirits.

Li ki, I, 460 ["Diet of the Ancient Chinese"] :—Broken glutinous rice (*tu*) with dog soup or hare soup. I, 461 :—Glutinous rice (*tu*) was thought to suit beef.¹¹

Chou li, I, 94 ["Diet of the Son of Heaven"] :—Le riz (稌) convient avec le bœuf.

Shi king, 586 :—Abundant is the year with much millet and rice (稌).

There is a good deal of confusion and contradiction in the interpretation of the characters 稻 *tao* and 稌 *tu* by the ancient commentators on the Classics. The *Rh ya*, 71, gives *tao* and *tu* as synonyms. K'uo P'ao states that, in the kingdom of P'ei, *tu* is the usual name. We read in the

¹¹ *Li ki*, I, 461, LEGGE's translation. My remarks in brackets.

The glutinous rice [稌, *r. infra*, 338] was thought to suit beef; millet [黍 *Panicum miliaceum glutinosum*, *r. infra*, 311] to suit mutton; glutinous millet [稷 *Panicum miliaceum non glutinosum*, *r. infra*, 343] to suit pork; maize [粱 *Setaria italica*, *r. infra*, 344] to suit dog; wheat (麥) to suit goose; and the broad-leaved squash [苽 *Hydrophyrum latifolium*, *r. infra*, 350] to suit fish.

The same statements are found in the *Chou li*, I, 94.

Shuo wen that in the same kingdom the *tao* is called 粳 *no*. But, as is well known, *no* is the glutinous rice, the grains of which, when boiled, become sticky. In the *Rh ya i* [12th century], as quoted in *K.D.*, it is stated:—The grain of the *tao* looks like frozen dew. It grows in water. Another name is *t'u*. There are two varieties of it, one of them is glutinous, the other not glutinous. Nowadays [*i.e.*, in the 12th century] the people term the first *no*, the other 秈 *keng*. The *Shuo wen* defines the latter character, which is also written 粳 *keng*, as a kind of rice, and gives 粳 *lien* as a name for rice without the glutinous matter. From the above passage in the *Rh ya i*, it appears that *tao* is taken there, as nowadays, as a general name for all kinds of rice. The author of the *Pen ts'ao kang mu*, however, [*P.*, XXII, 31] considers 稻 *tao* to be a name designating glutinous rice [as does the *Shuo wen*], and treats of the common rice separately under the head of 秈 *keng* [XXII, 34].

In his *Li ki*, I, 302, LEGGE translates the characters 秈 稻 *shu tao* by rice and other glutinous grains. Although the first of these characters, according to the dictionaries, means glutinous millet [*r. infra*] I am not satisfied with LEGGE's translation. *Shu* is, I think, here to be taken as an adjective, in the sense of glutinous, and by *shu tao* [used for the preparation of liquors, as the text says] glutinous rice is meant. *P.*, I, c., quotes a passage from an old treatise on husbandry, in which the author, FANG SHENG-CHI [1st century B.C.] says:—In the third month the 秈 稻 *keng tao* [or common rice, *r. supra*] is sown, in the 4th month the 秈 稻 *shu tao*. LI SHI-CHEN adds that the latter is the glutinous rice.

In the *Shan hai king* the 秈 米 *t'u mi* and the 稻 米 are mentioned together with the 稭 *sā* as used in offerings to the mountain spirits. The character *sā* occurs also in the *Li sao*, 50. HERVEY DE SAINT-DENYS translates it:—Le riz purifié des sacrifices.

Amem. erot., 834 :—稷 *ko*, vulgo *motsi gomme*. Planta Orizæ grano pingui, albissimo.

糲 *du r. motsi no jone*. Oryza grano muciori, superficie rubente.

Phon zo, XL, 15-21, various varieties of rice figured under the above Chinese names.

339.—After rice, *Wheat* seems to be the most important of the cereals cultivated by the Chinese. Its culture can likewise be traced back to remote antiquity. It was known to the ancient Chinese by the same name, 麥 *mai*, as now-days. In the popular language it is called 小麥 *siao mai* (little *mai*) whilst by 大麥 *ta mai* (great *mai*) barley is designated. Both these popular terms are also of ancient use, for they are found in FANG SHENG-CHI's treatise on husbandry [1st century B.C.] The *Shuo wen* explains the character *mai* by 芒穀 *mang ku* (bearded grain).

Another ancient and classical name for wheat is 稊 *lai*, written also 𥝌, and sometimes simply 來, without the radical, as in the *Shi king*. This latter character forms also the upper part of the radical character 麥 *mai*.

The *Shuo wen* says that this corn is an excellent present, which came down to man from heaven, wherefore the character designating wheat includes the character *lai* "to come." According to the same *Shuo wen*, 稊 *lai* is the common name for wheat in the kingdom of 齊 *Ts'i* (Northern Shantung).

Wheat is not noticed in the *Rh ya*, although the character 麥 occurs twice in the text [32 and 125] forming a part of compound names of plants. The *Kuang ya* has 稊 *lai*, same as 小麥.

Li ki, I, 226, 麥 wheat presented with fish for sacrifices at the altar of the spirits of the land. I, 249, 257 :—The Son of Heaven eats wheat and mutton. 271 :—He tastes wheat along

with pork. 1, 289 :—The officers stimulate the wheat-sowing, in the second month of autumn. 1, 460 :—A condiment of wheat with soups of dried slices and of fowl (diet of the ancient Chinese). 1, 461 :—Wheat suits goose.

Chou li, II, 270 :—麥 wheat produced in the Province of 青州 Ts'ing chou (Southern Shantung). 1, 94 :—Wheat suits goose.

Shi king, 79 :—I am going to gather the wheat, 麥, in the north of Mei (which was north of the Yellow River). 89 :—I would have gone through the country amidst the wheat so luxuriant. Also 122-172 :—Large rats do not eat our wheat. 232 ["Life in Pin"] :—Gathering of wheat and other grains in the 10th month. 469, 620 :—Hor TSI [*c. infra*, 343] sows wheat. 620 :—O accomplished Hor TSI, thou didst give grain food to our multitudes, thou didst confer on us the wheat 來 and the barley 牟 which God appointed for the nourishment of all ! 582 :—How beautiful are the wheat 來 and the barley 牟, whose bright produce we shall receive !

Ch'un ts'iu, 113 :—There was [B.C. 661] a great want of wheat 麥 and rice 禾.

Comp. regarding wheat *P.*, XXII, 17, 小麥 *siao mai*, and the drawing under the same name, *Ch.*, I, 13. See also *Phon zo*, XI, 8. *Amen erot.*, 834, 麥 *baku*, vulgo *muggi*, frumentum in genere, et in specie *Hordeum*.

340.—*Barley*, although it has never been cultivated to a great extent in China, for the Chinese esteem it much less than wheat, was nevertheless known to them in the early days of Chinese husbandry. The classical name of this cereal is 麩 *mou*, sometimes, as in the *Shi king*, written 牟, without the radical. The character *mou* is not found in the *Rh ya* ; the *Kuang ya* explains it by 大麥 *ta mai* (the great *mai*), which latter is still the popular Chinese name for barley.

Wheat and barley in Chinese books are often termed the 二麥 *rh mai* or the two *mai*, the smaller and the greater.

Barley is twice mentioned in the *Shi king*, together with wheat [*see* 339].

MENCIUS, 280, terms the barley 糗麥 *mon mai*.

Comp. regarding barley *P.*, XXII, 23, 大麥 *ta mai* and the drawing *Ch.*, I, 15. See also *Phon zo*, XL, 8; *Amæn. exot.*, 834.

341.—Frequent mention is made in the Chinese Classics of the common millet, *Panicum miliaceum*, L., of which the Chinese from early times distinguish two varieties, the 黍 *shu* and the 稷 *tsi*. [See *P.*, XXIII, 1-5.] The *shu* is characterised by a glutinous matter contained in its seeds, which property becomes apparent when these seeds are boiled, whilst the seeds of the *tsi*, like those of the *Panicum miliaceum*, cultivated in the south of Europe, are not glutinous. Complete herbarium specimens of both varieties were sent from Peking to the late Dr. HANCE and to other competent botanists for examination. These botanists were not able to make out any botanical difference between these two, considered by the Chinese as distinct plants.

The 黍 *shu* has now the same name as in ancient times. It is much cultivated throughout the Empire. The hulled grains are called 黃米 *huang mi* (yellow grain, also an ancient term). The 稷 *tsi* is known at Peking under the popular name of 糜 *tsz'*. They write the first character 糜 or 糜. This is likewise an ancient synonym. *P.* quotes an author of the Han dynasty, who says that in the western part of Northern China the *tsi* is called *mei* (or *mi*).

Drawings of the *shu* and the *tsi* are given in *Ch.*, I, 22, 25.

KÄMPFER, in his *Amæn. exot.* [834] notices only the 稷 *sioku* vulgo *kibi*, *Milium vulgare*, semine luteo. The

Phon zo [XII, 1, 2] considers 稷 and 黍 to be synonyms, and represents under these names *Panicum miliaceum*.

The *Shuo wen* calls the *tsi* the best of all grains, notices the glutinous properties of the *shu*, and quotes a statement by CONFUCIUS, that the *shu* is employed in producing fermented liquors [as nowadays]. *P.* quotes ancient authors who speak of the likeness of the two plants, the only difference being the glutinous seeds of the *shu*.

LEGGE translates the character *shu* generally by millet. In the *Shi king* he identifies it, on the authority of WILLIAMS, with *Milium nigricans*.¹²

BIOT [*Chou li*, I, 26, 94] calls the *shu* erroneously *Milium globosum*, also gros millet.

Li ki, I, 80 :—Do not use chopsticks in eating millet (*shu*). I, 117 :—According to the rule for sacrifices in the ancestral temple, the *shu* is called 蕡合 *hiang ho*, the fragrant mass. I, 226 :—For the sacrifices at the altar of the spirits of the land and grain, the common people in autumn presented millet (*shu*). I, 273, [*Yue ling*] :—In the second month of summer the husbandmen present [the first fruit of] their millet (*shu*). I, 297, [*Yue ling*] :—In the first month of winter the son of Heaven eats millet (*shu*) and sucking pig. I, 368 :—Roasted millet (*shu*). I, 459 ["Diet of the Ancient Chinese"] :—Millet (*shu*) used for food. 460 :—Used for making fermented liquors. 461 :—Millet (*shu*) suits mutton.

Chou li, I, 94 :—Le gros millet (黍) convient avec le mouton. II, 272, 274 :—The *shu* and the *tsi* mentioned as produced in the Provinces of 雍州 Yung chou (Shensi) and 冀州 Ki chou (Shansi).

Shi king, 110 :—There were the millet (*shu*) with the drooping heads, and the sacrificial millet (*tsi*) in the blade—

¹² I may observe that *Milium nigricans* is a Peruvian graminee, which has nothing to do with *Panicum miliaceum*.

in the ear—in grain. 183 :—We cannot plant our millet (*shu*) and sacrificial millet (*tsi*). 232 ["Life in Pin"] :—The millets *shu*, the early sown, and *tsi*, the late. 263 :—When we were marching at first the millets (*shu* and *tsi*) were in flower. 375, 377, 379, 382 :—*Shu* and *tsi* mentioned together. 621 :—HOU TSI [*r. infra*, 343] knew how the *shu* ripened early and the *tsi* late.

In the *Shu king* the *shu* and the *tsi* are frequently mentioned.

MENCIVS [318] said :—In Mi (barbarian tribes in the north) not all the five kinds of corn are grown. It only produces the millet *shu*.

342.—In ancient Chinese works several varieties of the *shu* or glutinous millet are distinguished—the black, white, red, yellow, the double-kernelled.

The character 秬 *kū*, repeatedly mentioned in the Classics, is explained in the *Rh ya* [69] by 黑黍 *hei shu* (black glutinous millet). This millet was used in ancient times for making fermented liquors, 鬯 *ch'ang* employed in sacrifices [*r. infra*, 349]. WILLIAMS [*Dict.*, 439, 776] suggests that the black-seeded millet of the Classics may have been a variety of *sorghum*, for no species of *Milium* now cultivated has black seeds. I do not agree with this view, for there is evidence from ancient Chinese authors that *sorghum* became first known in China in the 3rd century of our era. It had probably been introduced from India. The character *hei*, meaning black, is not necessarily to be taken literally; it may in this case mean dark coloured.

Chou li, I, 398, 468 :—Si l'empereur meurt le sous-supérieur des cérémonies sacrées fait laver le corps avec du vin de millet noir 秬鬯.

L'officier du vin odorant est chargé de préparer le *tchang* (鬯) ou vin odorant extrait du millet noir (秬).

Shi king, 470 :—HOU TSI [*r. infra*, 343] gave his people the beautiful grains, the black millet (*kā*) and the double-kernelled, etc ; and [620] he taught the people how to sow and to reap the millets *shu* and *tsi* and the black millet (*kā*).

A variety of the *kā* or black millet was called 秬 *p'ei*. The text of the *Rh yü* [70] explains that two seeds are contained within one glume, and K'RO P'RO adds that it is a variety of the black millet. I am not prepared to say what this double-kernelled millet was. It is once mentioned in the *Shi king* together with the *kā* [*r. supra*].

The 白黍 *pai shu* or white (glutinous) millet is mentioned in the *Li ki* [I, 45] among the grains used for food.

343.—The 稷 *tsi*, the common millet, *Panicum miliaceum*, (the seeds of which are not glutinous) was in the classical period much used in sacrifices. *Tsi* was also the title of an office exercised under the Emperor SHUN [B.C. 2255] the functions of which were the supervision of agriculture. The holder of this post was 棄 K'U, a brother of the Emperor YAO, to whom the princes of the house of Chou traced their lineage. [See MAYERS' *Chinese Reader's Manual*, p. 223, and *Botan. sin.*, I, p. 76.] He was known under the title 后稷 HOU TSI. Two odes of the *Shi king* [pp. 465, 620] are devoted to him.

LEGGE translates the character *tsi* generally correctly by "panieled millet" or "sacrificial millet," but in the *Li ki* twice erroneously by "rice." *Li ki*, I, 443:—*Artemisia* along with millet and rice (the text has 黍稷) burned with the fat of the victims in sacrifices. *Id.*, I, 459:—Of grain food there were millet, the glutinous rice, rice (the text has 黍稷稻). *Id.*, I, 461:—Glutinous millet (the text has 稷 common millet) suits pork.

BIOT, *Chou li*, I, 94 :—Le petit millet (*tsi*) convient avec le pore. *Id.*, I, 26, BIOT identifies the *tsi* erroneously with *Holcus sorghum*.

Regarding other passages in the *Chou li* and the *Shi king*, where *tsi* occurs with *shu*, see the latter [341]. The *shu* and the *tsi* are frequently mentioned in the *Shu king*.

The character 粢 *tsz'* of the Classics is given in the *Rh ya* [27] as a synonym of 稷 *tsi*.

In the *Li ki* [I, 117] we read :—According to the rules for sacrifices in the ancestral temple, the sacrificial millet (稷) is called 明粢 *ming tsz'*, the bright grain.

Chou li, I, 445 :—Le sous-supérieur des cérémonies sacrées distingue le nom et la couleur des six sortes de grains consacrés, 六簋 *liu tsz'*, ainsi que leur usage spécial. Commentaire B. [CHENG HÜAN] :—*Tsz'* est ici pour 粢 nom générique des six grains [*v. supra*, 335].

The character 粢 appears in the *Shu king* [286]. LEGGE :—A kind of millet. MENCIUS [142] says :—It is said in the *Li* (Book of Rites) : a prince ploughs himself and is assisted by the people to supply the millet of sacrifice 粢盛.

The same character *tsz'* is met with in the *Tso chuan* [48, 49]. The commentary explains it by 黍稷.

LEGGE [*Shi king*, 110] says that the character 稷 *tsi* is the same as 稷. It is not found in the Classics, but it was in use several centuries B.C., as appears from the quotations in *K.D.* The *Shuo wen* identifies it with 糜 *mi*, which, as we have seen, is a popular name for the common millet.

344.—Another important millet, most extensively grown all over the Chinese Empire, especially in the Northern Provinces, the 粱 *liang*, is also frequently mentioned in the Classics. It is the *Setaria italica*, Kth., (*Panicum*

italicum, L.), easily distinguished from the panicle millet by its long and dense compound nodding spikes. This is also largely cultivated for food in the South of Europe.

See regarding the *liang*, P., XXIII, 7. The popular name of it at Peking is 穀子 *ku tsz'*, the hulled corn is called 小米 *siao mi* (small grain). Its grains are much smaller than those of *Panicum miliaceum*. In the north of China, where rice is not much cultivated, it forms the principal food of the lower classes.

A good drawing of the plant, under *liang*, is found in *Ch.*, I, 18. The plant figured under 粱 in the *Phon zo* [XII, 7, 8] is likewise *Setaria italica*.

BIOT [*l.c.*, I, 70] translates the character *liang* by gros millet or *Holcus*. LEGGE renders it by large-grained millet, but more generally by maize. I may observe that maize, an American plant, was unknown to the ancient Chinese. WILLIAMS [*Diet.*, 525] identifies the *liang* correctly with the common spiked millet, but he is wrong in calling it "canary seed," for the latter is supplied by *Phalaris canariensis*.

Li ki, I, 106:—In bad years, when the grain is not coming the great officers will not eat the large-grained millet (*liang*). I, 117:—According to the rules for the sacrifices in the ancestral temple, the *liang* is called 穊 蕡 *liang ki* [regarding *ki*, see *infra*, 354]. I, 429 ["Grain Food of the Ancient Chinese"] :—Maize (*liang*) and yellow maize (黃 粱), cut when ripe or when green. I, 461 :—Maize (*liang*) suits dog.

Chou li, I, 94 :—Le millet *liang* convient avec le chien.

Shi king, 184 :—We cannot plant our rice and maize (*liang*), how shall our parents get food? 301 :—Yellow bird, do not eat my maize (*liang*). 379 :—The millets, the rice and the maize (*liang*) will awake the joy of our husbandmen,

MENCIUS, 296 :—He who is benevolent and righteous does not wish for fat meat and fine millet (*liang*).

345.—In the *Shi king* [470,] in the ode devoted to the legend of HOU TSI, mention is made of a millet 糜 *men*. LEGGE terms it the tall red millet, large-grained millet, a variety of *Holcus*. WILLIAMS [*Dict.*, 577] says that *men* is the name of a variety of millet with reddish culms, now applied in Chihli to the glutinous grain of the 黍 *shu* or panieled millet, *Milium*, called 糜子米 *men tzu' mi*, and used in distilling spirits. But WILLIAMS is mistaken. He intends, it seems, the 糜子 *mei tzu'*, which is the common panieled millet, not the glutinous variety [see the preceding].

The Chinese commentator on whom LEGGE relies, explains the above character *men* by 赤梁粟 *ch'i liang su*, red spiked millet, and K'uo P'ao explains by the last three characters the 糜 *men* or 赤苗 *ch'i miao*, red blade of the *Rh ya*, 67. The *Shuo wen* writes 赤苗嘉穀, excellent corn of the red blade. HING PING says that the character *men* in the *Rh ya* is the same as the *men* of the *Shi king*. *P.*, however, takes these names to refer to varieties of the *shu* or glutinous millet, not of the *liang* or *Setaria italica*.

346.—There occurs in the *Shi king* also the character 苳 *k'i*, applied to a kind of millet, which LEGGE terms the white millet. It is mentioned, together with other cereals, [470] in the ode devoted to HOU TSI. 284 :—Gathering of white millet in the fields brought only one year under cultivation. 468 :—By the Feng water grows the white millet.

The text of the *Rh ya*, [68] explains *k'i* by 白苗 *pai miao*, white blade; the *Shuo wen* writes 白苗嘉穀, excellent corn of the white blade. K'uo P'ao explains it by 白梁粟 *pai liang su*, white *Setaria italica*. *P.*, however, thinks that it was a variety of the glutinous millet *shu*.

MAO is of opinion that in the above-quoted passages from the *Shi king* the character *k'i* refers to different plants, for in 170 he explains it by 白苗, as in the *Rh ya*; in 284 by 菜 vegetable; and in 463 by 草 herb. LU KI describes the *k'i* as a kind of sow-thistle [*v. infra*]. CHU HI also understands by *k'i* the 苦菜 *k'u ts'ai* or sow-thistle. But LEGGE, following YEN TS'AN and KIANG PING-CHANG, translates *k'i* in all the three passages by white millet.

In the *Shan hai king*, *k'i* is the name of a tree, 芭木.

347.—The character 粟 *su*, applied nowadays to a distinct grain plant (*Setaria*), had in ancient times only the meaning of unhulled grain. LEGGE [*Mencius*, 466, note] states that *su* was rice in the husk, and 米 *mi*, hulled rice, that according to the *Pen ts'ao kang mu*, anciently *su* was the general name for all glumaceous grain, and that it is now commonly used for millet.

Li ki, I, 84:—粟 米 *su mi*, unhulled grain and hulled grain. The commentary says:—*su* same as *ku* (general name for grain). After the husk has been taken off it is called *mi*.

Chou li, I, 390:—Les officiers des dépôts sont chargés de conserver les quantités livrées de grains non écorés (粟).

Shi king, 301:—Yellow bird, do not eat my paddy (*su*). 335:—With a handful of grain (*su*) I go out and divine how I may be able to become good.

Shu king, 142:—Five hundred *li* constituted the imperial domain. From the first hundred *li* they brought as revenue the whole plant of the grain (總); from the second they brought the ears (秭); from the third they brought only the straw (秸), but had to perform other services; from the fourth they gave the grain in the husk (粟), and from the fifth the grain cleaned (米).

MEUSIUS, 85:—Rice and other grain (米粟) COXF. *Antl.*, 49, grain (*su*). *Ch'nn ts'nn*, 759:—In summer we sent grain (*su*) to Ts'ai.

The explanation of the character 粟 in the *Shua wen* is 嘉穀實, the fruit of the excellent cereal.

In *P.*, XXIII, 9, 粟, it is stated that originally *su* was a general name for grain, but in later times this term was applied to the 梁 *liang* or spiked millet, and especially to a variety of it distinguished by its smaller spikes and shorter bristles. Such a plant is figured under the name of *su* in *Ch.*, I, ii.

Anon. exot., 835:—粟 *dsjekie*, vulgo *ara*. Panicum, juba magna pendula, villosa, semine aureo. Panicum domesticum, Matth. Panicum indicum, Tabern. KEMPFER refers, it seems, to *Setaria italica*. [Comp. HOFFM. & SCHULTES, 408, *Phon zo*, XLI, 9, 10.]

348.—The *Setaria italica* in China has, like the paniced millet, produced varieties with glutinous seeds. LI SHI-CHEN, in *P.*, XXIII, 12, and before him earlier writers, identify the grain plant 秣 *sha*, mentioned in the Classics, with a glutinous variety of 梁 *liang* or 粟 *su*. The *Rh ya*, 28, gives *sha* as a synonym of 衆 *chung*, and K'uo P'o explains it by glutinous *su*. Other Chinese authors seem to confound 秣 with the homophonous character 黍 *sha* [*v. supra*, 341]. The *Shua wen* says that it is a glutinous variety of the 稷.

Regarding the meaning of 秣 in the *Li ki* [*v. supra*, 338].

Chou li, II, 516 517:—Pour teindre les plumes qui doivent orner les étendards et les drapeaux du char de l'empereur, on trempé dans le cinabre des grains de millet rouge (秣). Après trois lunes on les fait cuire. On les arrose et on y trempe les plumes. BIOT, in translating the

character *shu*, follows Commentator A. (CHENG Sz'-XUNG), who explains it by 赤粟 red *so*.

A variety of *Setaria italica* with red glutinous seeds is cultivated in the neighbourhood of Peking under the name 紅粘穀子 *huang nien ka tsz'* (red glutinous *Setaria*).

[Compare the drawing in the *Phon zo*, XI, 11, 12, 秣 *Panicum*?].

349.—The use of intoxicating beverages prepared from the grains of cereals was well known to the Chinese in the classical period. The characters 酒 *tsiu*, nowadays a general name for spirits, wine, beer and other drinks, and 醉 *tsui*, to be drunk, are repeatedly met with in the odes of the *Shi king* and also in the other Classics.

Shi king, 395 :—Ode against drunkenness. 399 :—When they have drunk too much they become insensible of their errors. With their caps on one side and like to fall off, they keep dancing and will not stop.

Shu king, 399 :—Book X is entitled 酒誥 [the Announcement about Drunkenness] ascribed to the Duke of Chou [12th century B.C.] The debauchery of Kee was the chief cause of the downfall of the Hia dynasty. The Duke said :—When Heaven was sending down its favouring decree, and laying the foundation of the eminence of our people, spirits (酒) were used only in the great sacrifices. . . . The ruin of states may also be traced invariably to their crime in the abuse of spirits.

The invention of wine or spirits in China is generally ascribed to a certain 儀狄 I TI, who lived in the time of the Emperor Yü. [See regarding this legend MAYERS' *Chinese Reader's Manual*, 230.] According to others the inventor of wine was 杜康 TU K'ANG [see *P.*, XXV, 31].

LEGGE translates the character 酒 *tsiu* in the Classics by liquor or distilled spirits, and states that it always denotes

the product of distillation and has been incorrectly translated by wine. 醴 *li* is the product in its earlier stage, before the process of distillation is commenced, after the mashing and fermentation, as the Chinese commentator explains:—when the juice and the refuse are mixed together, it is called 甜酒 or sweet spirits. [LEGGE'S *Shu king*, 260, 399, *Shi king*, Proleg., 153.] The character 蒸 *chong* [to steam, *W.D.*, 74] occurring in the Classics in connection with the fabrication of spirits, is translated “to distil” by LEGGE [*Shi king*, 471], and 漚 *sā* and 釀 *li* are rendered by “to strain off spirit.” For straining, the ancient Chinese used the 茅 *mao* grass [*r. infra*, 459].

Dr. EDKINS has, it seems to me, convincingly refuted Dr. LEGGE'S opinion that the *tsiu* of the ancient Chinese was the product of distillation, for in his papers on the subject [*China Review*, VI, 211; XV, 309] he gives reasonable certainty that distillation was entirely unknown in Chinese antiquity. EDKINS proposes to translate 酒 *tsiu* by “wine.” The *tsiu* used in sacrifices, etc., was simply produced by fermenting grain without distilling the liquor. According to *P.*, XXV, 41, distillation was introduced into China during the Mongol dynasty. LI SHI-CHEN therefore distinguishes between 酒 *tsiu* (wine) and the 燒酒 *shao tsiu* (or fired [distilled] wine), for which he gives the foreign equivalent 阿刺吉 *a-la-ki*. Evidently *arak*, the Persian name for brandy, is meant.

Nowadays the strong distilled spirit, made in the north of China from the grains of sorghum, is called 三鞭酒 (*san shao* (thrice fired) which is pronounced *san shu* in the south.

Quotations from the Classics regarding wine:—

Li ki, I, 181, 135. I. 117:—According to the rule for the sacrifices in the ancestral temple, spirits (酒) are called 清酌 (the clear cup). I, 460 [“Diet of the Ancient Chinese”]:—Of drinks there was must (醴 *li*) in two vessels, one strained,

the other unstrained, made of rice (稻), millet (黍), or of maize (粳). I, 301, [*Yue ling*]:—Second month of winter. Orders are given to the grand superintendent of liquors (酒正) to see that the rice and other glutinous grain are all complete; that the leaven cakes (麴蘖) are in season.

Chou li, I, 99:—L'intendant des vins (酒正) est chargé de la direction générale des vins. I, 104:—Les employés aux vins sont chargés de faire les cinq vins de libation, et les trois vins qui se boivent. [For particulars regarding these wines, see LEGGE's *Li ki*, I, 460, 447.]

According to the ancient authors quoted in *P.*, XXV. 31, article *tsiu*, wine in China was made in ancient times, as in our days, of the grains of rice (it seems especially glutinous rice), glutinous panicle millet (*shu*), and glutinous spiked millet (*liang*).

There is in the Asiatic Museum of St. Petersburg a manuscript, presented in 1755 to the Academy by the Jesuit Father D'INCARVILLE. [Comp. my *Early European Researches on the Flora of China*, 122]. It treats of the natural objects found in the neighborhood of Peking, and concludes with a treatise on Chinese wine:—Vin ou plu-tôt bière blanche de Chine, faite avec du riz et du mil rond, en chinois *houng tsieou* (vin jaune). D'INCARVILLE gives a detailed description of the mode of preparing this wine or beer from the boiled *houng mi* (glutinous panicle millet), to which is added *kin tze* (麴子), or yeast made of wheaten flour, in order to produce a vinous fermentation, etc.

A similar account regarding the same subject was given by Father CIBOT in the *Mém. conc. les Chinois*, V, 457:—Vin de Chine qui est une vraie bière, fait de mil rond mondé. Comp. also DABRY DE THIERSAUT, "Vins et eaux-de-vie chinoises," in *Bull. Soc. d'Acclim. de Paris*, 1878, 90-1102.

The common *tsiu* or 黄酒 *huang tsiu* of the Chinese of our days, which I believe is the *tsiu* of the Classics, in North

China is made of the glutinous panicled millet (*shu*) ; in Middle and South China glutinous rice is more generally used. This rice is employed for the fabrication of the much-esteemed wine of Shao hing, a city of Chekiang. Dr. DUNGEON, in his interesting book [*Diet, Dress, etc., of the Chinese*, p. 113] compares the Chinese yellow wine of Peking to a weak Sherry.

In the classical period the Chinese used to prepare from the 秬 *kā* or black millet a peculiar fragrant wine called 鬯 *ch'ang*. It was employed in sacrifices. They mixed it with the plant 鬱 *yü* [*c. infra*, 408].

Chou li, I, 468, 398 :—L'officier du vin odorant (鬯人) est chargé de préparer le *ch'ang* ou vin odorant extrait du millet noir (秬 *kā*). Commentator B. (CHENG HŪAN) :—On fait fermenter le millet noir et on en fait du vin, dont le parfum se répand en haut et en bas, lorsque le représentant du défunt ou de l'ancêtre fait la libation. MA YOUNG dit que *ch'ang* est une plante aromatique, mais KONG YING-TA observe que c'est le nom spécial d'un vin qui se fait avec le millet noir et deux parties de riz. I 451 :—Si l'empereur meurt, il y a la cérémonie de la grande préparation du corps. Le supérieur des cérémonies sacrées fait alors laver le corps avec du vin de millet noir (秬鬯).

Li ki, I, 119 :—Spirits of black millet (*ch'ang*). II, 141 :—Sacrificial spirits (*ch'ang*). *Shi ling*, 554 :—Herb-flavoured spirits of the black millet. Idem, *Shu king*, 449, 618.

麴 *k'ü*, also written 麴, is the Chinese name for leaven, used to produce fermentation in making wine. The *Shuo wen* explains the character by 酒母 *tsiu mu*, mother of wine.

Leaven cakes, 麴蘖 *k'ü ye*, are mentioned in the *Li ki*, *Yue ling* [see quotation above] and in the *Shu king*, 260, where LEGGE translates *k'ü ye* by "malt."

According to *P.*, XXV, 17, the *k'ā* or leaven is prepared from wheaten flour, also from barley or rice. D'INCARVILLE and CIBOT say from wheaten flour, barley or oats.

Vinegar, usually procured from an infusion of malt which has previously undergone the vinous fermentation, was also known to the Chinese in early days. BIOT translates the character 醃 *hi* [in the *Chou li*, I, iii], by "vinegar." LEGGE renders the same by "pickle" [*Li ki*, I, 79]. *W.D.*, 177, same character defined by "sour, vinegar like." In the *Shuo wen*, *hi* is explained by 酸 *swu* (sour), and *P.*, XXV identifies it with 醅 *tsu* (also written 醅) which is the modern name for vinegar.

Regarding the Chinese mode of making vinegar compare D'INCARVILLE and CIBOT, *l. c.*

E., "Administration of Government" [*v. supra*, 307, note], "National Economy," 酒 269-283.

E., "National Economy," 300, deals with vinegar.

350.—The *Chou li*, as well as the *Li ki*, mentions an edible grain called 苽 *ku*, which some of the early commentators include in the six or nine kinds of cereals [*v. supra*, 335]. LEGGE translates *ku* by broad-leaved water-squash.

Li ki, I, 460 ["Diet of the Ancient Chinese"] :—For relishes, snail-juice and a condiment of the broad-leaved water-squash were used with pheasant-soup. I, 461 :—The broad-leaved squash was thought to suit fish.

Chou li, I, 94 :—The millet aquatic (*ku*) convient avec le poisson. I, 70 :—Commentator C. (KIA KUNG-YEN) says : In the south they have the 苽米 *ku mi*. It is also called 彫胡 *tiao ku*.

The *Shuo wen* gives as synonyms for *ku*, 彫苽 *tiao ku* and 蔣 *tsiang*. The *Kuang ya* has 苽 *ku* or *tsiang*.

The *Rh ya i* identifies the *ku* with the *ye tiao p'eng* in the *Rh ya*, 15, and states that it is a water-plant whose leaves resemble those of the sugar-cane. In Kiangnan the people

call it 菱草 *kiao ts'ao*. It affords an excellent fodder for horses; it grows in the marshes of 甬浙 (Chekiang). In spring the young stalks are used as food, as well as in autumn the grains. [Comp. also *Ith ya*, 88, 217.]

P. treats of this plant [XXIII, 15] under 菰米 among cereals, and [XIX, 16] under 菰 among water-plants.

The plant here spoken of is the *Hydropyrum latifolium*, Ledeb., a tall grass, still cultivated throughout China for its young stalks, known by the name of 菱白 *kiao pai*, which are eaten as a vegetable. [Comp. Dr. HANCE's notice of the plant in *Journ. Bot.*, 1872, 146.] I am not aware that nowadays the seeds of this plant are gathered in China for food, but I may observe that the grains of an American species of the same genus [the *H. esculentum*] yield a considerable quantity of food to the Indians, wherefore it is also called Canadian Rice.

Figures of the *ku* or *kiao* plant [but only leaves] are given in the *K'iu huang*, LIII, 27, and *Ch.*, XVIII, 13.

SIEBOLD, *Syn. plant. æcon. jap.*, 368, 菰 *Makoma*, Graminea. Frumentum pro farina in provinciis septentrionalibus Cosjnn ac Mino cultum.

Phon zo, XXXIII, 21, 22, 菰米. The drawing seems to represent *Hydropyrum latifolium*.

V. supra, 88.

351.—BIOT, in his article on the Manners of the Ancient Chinese according to the *Shi king*, translated by LEGGE, *Shi king*, Proleg., 142-171, writes:—We can tell the principal kinds of cereals mentioned in the *Shi king* and point out the localities where they were cultivated. They were rice, wheat, barley, buck-wheat (sarrasin), two sorts of millet, the *shu* and the *tsi*.

I have not been able to make out what character in the *Shi* Biot refers to buck-wheat. This grain, now much cultivated in China under the name of 蕎麥 *kiao mai*, seems

to have been unknown to the ancient Chinese. It is not mentioned in the oldest Chinese treatises on husbandry. The name *kiao nai* first appears in the *Ts'i min yu shu* [5th century]. See also the *Nung cheng ts'üan shu*, XXVI, 11.

352. —We read in MENCIUS, 297 :—Of all seeds the best are the five kinds of grain, yet if they be not ripe they are not equal to the 莠 *Pi* and the 稗 *pai*. So the value of benevolence depends entirely on its being brought to maturity.

Regarding these plants, LEGGE translates the following particulars drawn from *P.*, XXIII, 13, *pai*, and other Chinese works :—The *Pi* and the *pai* are two plants closely resembling one another. They are a kind of spurious grain, yielding a rice-like seed, but smaller. They are to be found at all times, in wet situations and dry, and when crushed and roasted may satisfy the hunger in a time of famine. One kind of *pai* is called in the north bird paddy 鳥禾 *niao ho*.

I am not prepared to say to what gramineous plant the *Pi* answers. [*V. supra*, *Rh pa*, 61] where the name is written 稗. Compare also the Calendar of the Hia [36] :—In the second month panic grass, 稗 *Pi*, is gathered. Kuo P'ao says that the *Pi* resembles the 稗 *pai*. As to the latter name, it is applied at Peking to *Panicum* (*Echinochloa*) *crus galli* L., a wild-growing plant, which is also cultivated for its grain. This plant has the same Chinese name in Hupei [HENRY, *l.c.*, 335]. LEGGE is mistaken with respect to the name "bird paddy," for the correct reading is 鳥禾 *ia ho*, black corn. The ears of *P. crus galli* when ripe are of a blackish colour. [See drawings of the *pai* in the *Kiu kuang*, LII, 5 ; *Ch.*, II, 1.]

SIEB., *Syn. plant. arcan. jap.*, 34, 稗 *nora hiye*, *Elenisine corneana*, Gaertn. Hinc inde cultum frumentum. But KEMPFER'S 稗 *jai* vulgo *jiye*, *Panicum vulgare panicula*

minore, semine nigricante [*Ann. bot.*, 835] may rather refer to *P. crus galli*. The plant represented in the *Phun zo*, XI, 15, under 旱稗 (*pai* growing in dry grounds) is *P. crus galli*. *Ibidem*, 14, is the 水稗 (water *pai*) likewise a *Panicum*. According to HOFFM. & SCHULTES [407] this Chinese name is applied in Japan to *P. crus galli*, L.

E., 40, family 稗, figure probably of *Panicum crus galli*.

II.—Vegetables.

353.—The classical Chinese name for vegetables in general was 藪 *su*. [See LEGGE'S *Shi king*, 548.] In the *Rh ya* (釋器) this term is identified with 菜 *ts'ai* which still to this day is the common name for culinary vegetables. The term *ts'ai* occurs in the *Li ki* and in the *Shi king*, but in the latter only once in the name of an edible water-plant *hing ts'ai* [*r. infra*, 399]. The *Shao wen* explains *ts'ai* by edible herbaceous plants.

The character 蔬 *shu*, likewise an old term for vegetables, explained in the *Shao wen* by 菜, is, however, not used in the Chinese Classics in this sense.

There occurs in the *Li ki* a character [莠 *mao*] which CHENG HUAN explains by *ts'ai* (vegetable), the *Rh ya* (釋言) by 𦵏 (to pluck). KUO P'o adds:—to pluck up vegetables.

The passage in the *Li ki* 雉兔皆有莠 is translated by LEGGE [I, 461]:—Pheasants and hares were [made into soup] with the duckweed; and, *ibidem*, the term 莠羹 is rendered [I, 451] by "soup with vegetables."

The same character (*mao*) is found in the *Shi king*. MAO explains it by "to pick out, to select." LEGGE [4] translates it according to the Sung commentaries by "to cook," and says that this meaning is supported from the *Li ki*.

354.—**藪** *shu*, also written **叔** and **尗**, is a collective name for leguminous plants and their seeds, pulse. It is frequently met with in the Classics. The *Kuang ya* says that *shu* denotes especially the **大豆** *ta tou* or soy bean.

Li ki, I, 268 [*Yue ling*]:—First month of summer. The son of Heaven eats beans (*shu*) and fowls. I, 451:—Beans.

Shi king, 231 ["Life in Pin"]:—In the seventh month they cook the pulse (*shu*), and [232]:—In the ninth and tenth month the pulse (*shu*) is gathered. 334, 365:—Pulse, beans gathered. 401:—They gather the beans (*shu*) in their baskets, square and round. 621:—Hou TSI [*v. supra*, 343] taught the people how to sow pulse (*shu*).

MENCIUS [389] said:—When pulse (*shu*) and grain (*su*) are abundant as water and fire, how shall the people be other than virtuous?

Ch'un ts'iu, 744 [Duke Ting, first year]:—In winter, in the tenth month, there fell hoar frost, which killed the pulse (*shu*).

Nowadays **豆** *ton* has the same meaning as *shu*, pulse. But in the classical period *ton* was a term to designate a certain wooden vessel or dish for containing flesh sauces at sacrifices and feasts. The *Rh ya* explains **豆** by "wooden vessel." BIOT [*Chou li*, I, 109] translates it by "terrines en bois." The meaning of pulse or beans was transferred to this character several centuries after the time of COSRUCIUS, as can be concluded from the quotations in *K.D.* The *Shuo wen*, in one place, explains *ton* by "ancient vessels for containing meat," but in another chapter takes it in the sense of *shu* or pulse. Some authors of the Tsin dynasty, in the 3rd or 4th century, began to write **菹** *ton* to designate pulse. W.D., 875, takes this to be the correct form.

The character **藿** *ki* is explained in the *Shuo wen* by **禾藿** stalks of pulse. But *ki* has also other meanings. **藿藿** *hiang ki*, in the *Li ki*, is a sacrificial name for the

Setaria italica. [V. *supra*, 344.] *Ki* is also the name of a certain aquatic plant. [See W.D., 336.]

The character 藿 *ho* is explained in the *Shuo wen* by 未之少也 young plants of pulse. The *I li* Classic, quoted in *K.D.*, says "leaves of beans." MAO explains it by 苗 (young plants).

Shi king, 300 :—Let the brilliant white colt feed on the bean sprouts (*ho*) of my vegetable garden.

葵 *kia*, according to the *Shuo wen*, is 艸實 (fruit of herbaceous plants). The *Kuang ya* defines it more precisely as 豆角, horns (pods) of pulse. But *kia* is also applied by the Chinese botanists to the siliques of cruciferous plants and the seed-vessels of the elm.

BIOT [in the *Chou li*, I, 195] is mistaken in translating 葵 by "noyan des fruits." He confounded the character evidently with 核 [r. 469].

E., 35-37, family 豆. Figured are :—

大豆 *Jap.*, 1029, the same as the next, but the figure differs.

黄豆苗 *H.*, 467, *Glycine hispida*, Max. *A.*, XV, 146.

綠豆 *C.*, 778, *Phaseolus radiatus*, L. *Jap.*, 1601, var. *subtriloba*. [*Sm.*, 171, 227, differ.]

白豆 Variety of 大豆, also 毛豆 *Pr.*, 46. [*E.*, 36, 11, 白豆=飯豆.]

豌豆 *Jap.*, 1644, *Pisum sativum*, L. *Sm.*, 172, *Pisum arvense*.

野豌豆 *Jap.*, 1234, *Lathyrus maritimus*, Bigel, var. *Thunbergianus*. *H.*, 519, 40, *Millettia*.

蠶豆 *C.*, 1327, *Vicia faba*, L. *A.*, XV, 146.

豇豆 *Jap.*, 822, *Dolichos umbellatus*, Thbg. *A.*, XV, 146, *Dol. sinensis*, L., also 豆角.

紫豇豆 Variety of the former.

藊豆 *H.*, 471, *Dolichos lablab*, L. *C.*, 1021.

山藊豆 *Jap.*, 533, *Cassia mimosoides*, L.

刀豆 *Jap.*, 440, *Canavallia ensiformis*, DL. C., 1256.
A., XV, 147. *Pr*, 294, also 水流豆.

黎豆 *Jap.*, 1462, *Mucuna capitata*, Wight & Arn.

山黧豆 *Jap.*, 1235, *Lathyrus palustris*, L., var. *linearifolius*,
Scr.

山黑豆 *Jap.*, 832, *Dumasia truncata*, S. & Z.

苦馬豆?

鹿藿 *Jap.*, 1899, *Rhynchosia volubilis*, Lour., also 野扁
豆 compare below *Pr*, 241, and *H*, 473.

鵲豆?

回回豆?

355.—In the *Shi king* we have the term 荏菹 *jen shu*, which LEGGE translates by "large beans." 468:—HOU TSI planted large beans which grew luxuriantly.

In the *Rh ya* [29] *jen shu* is given as a synonym of 戎菹 *jung shu*. SYX YEN identifies it with the 大豆 *ta tou* or great bean, which latter name seems to appear first in FANG CHENG-CHI'S book on husbandry [1st century B.C.] This is the soy bean, *Soja hispida*, Manch. [See *P*, XXIV, 1.] A good drawing of the plant is found in *Ch*, I, 8. This bean has always been considered by the Chinese as the most important of the cultivated leguminous plants. It is grown in numerous varieties all over the Empire, especially in the north, and is much esteemed for the oil yielded by its seeds. The name great bean refers to the plant, not to the seeds, which are small, of the size of a pea.

The soy bean is also largely cultivated in Japan. It is described and figured under the Chinese name 大豆 in *Amoen. erot.*, 838, and *So moku*, XIII, 18-21.

The soy bean is much employed in China and Japan for preparing the so-called "bean-curd" and the sauce called "soy." The first is prepared by macerating the beans in water and milling them together with the water. The liquid pap is filtered. To this fluid is added gypsum, in order to

coagulate the casein, and also chloride of magnesium. The coagulated casein or bean-curd is of a jelly-like appearance. Soy is made by boiling the beans, adding water, salt and wheat, and producing fermentation by yeast.

Bean-curd and soy were most probably known to the Chinese in the classical period, although no distinct mention is made of these condiments in the classical writings. The ancient term 醬 *tsiang*, which LEGGE translates by "sauce," includes, we may suppose, soy. [See *Li ki*, I, 459-461 "Diet of the Ancient Chinese."] CONF. *Anth.*, 96. BIOT translates the *tsiang* mentioned in the *Chou li* by "mets délicats," I, 70:—Pour les mets délicats on emploie cent vingt objets différents. Compare *P.*, XXV, 26, on the preparation of the *tsiang*. At Peking the common name for soy is 醬油 *tsiang yu* (*tsiang* oil). WILLIAMS [*Diet.*, 764] states that the English word soy is probably derived from 豉油 *shi yu*, in Japanese *si yu*. [I should think rather from 醬油 pronounced *sho yu* in Japanese. See HEMBURN'S *Dictionary*.] The character 豉 written 枝 in the *Shuo wen* is explained there by 配鹽幽未也, made of salt and beans [I cannot understand what the character 幽 here is intended to mean]. See also *P.*, XXV, 2; under 大豆豉.

As to the bean-curd, 豆腐 *tou fu*, it appears from the quotations in *P.*, XXV, 7, that this term and the mode of making bean-curd are first mentioned in the *Hwai nan tzu* [2nd century B.C.], but it was no doubt much earlier known in China.

356.—The authors of the Han period speak of another kind of pulse, which they call 小豆 *xiao tou* (small bean). An early commentator on the *Chou li* [*c. supra*, 335] includes it among the nine kinds of grain. FAN SHENG-CHI, in his book on husbandry [1st century B.C.] gives details regarding its

cultivation. The *Shuo wen* and the *Kuang ya* identify the *siao tou* with the 荳 *ta*.

P., XXIV, 10, gives *ta* as an old name for the 赤小豆 *ch'i siao tou* (red small bean). The *Ts'i min yao shu* distinguishes three kinds of the small bean—a red, a green and a white, referring to the colour of the seeds.

According to LOUREIRO, *Flora cochin.*, 530, *siao ten* in South China is the Chinese name for *Phaseolus Mungo*, L. In *Amen. exot.*, 837, we have 荳 *too*, vulgo *atsuki*. *Phaseolus hirsutus lobis foliorum line illine auritis, . . . floribus geminis uni longo petiolo insidentibus, languide luteis . . . siliqua triunciali, angusta, tereti, curva . . . seminibus ciceris magnitudine . . .* Semina in farinam redacta quotidianam subeunt pro scriblitis et libis pinendis crustulariorum manus. A drawing of this plant was subsequently published in BANKS' *Icones Kämpferi selectae*, etc., tab. 40. THUNBERG, *Flora japon.*, 279, identifies KÄMPFER's *atsuki* with *Phaseolus radiatus*, L. In the *So moku*, XIII, 28, 29, 赤小豆 is a variety of *Ph. radiatus* with red seeds. *Ibidem*, 31, 綠豆 *Ph. radiatus*, variety with green seeds. LOUREIRO, *l. c.*, 529, *Phaseolus radiatus*, L. sinice *lin ten* (i.e. 綠豆 *lā tou*, green bean). *Ph. radiatus* is a near ally to *Ph. Mungo*, and these two species have often been confounded by botanists. The seeds of the former may be at once distinguished from the seeds of the green variety of *Ph. Mungo*, by their being covered with long hairs, whilst the seeds of *Ph. Mungo* are glabrous. Besides this the seeds of *Ph. radiatus* are distinguishable by their prominent hilum. In a recently published interesting paper on some leguminous plants cultivated in Russia, Prof. A. BATALIN of the Botanic Gardens, St. Petersburg, proved that the beans cultivated in North China and Manchuria (probably also those of Japan) under the name of *lā tou*, or green beans, all belong to *Ph. Mungo*, not to *Ph. radiatus* as was formerly believed. The *lā tou* is extensively

cultivated all over China, and supplies an important article of food. From the flour of the small green seeds the Chinese prepare their vermicelli.

Other Chinese names of *Leguminosæ* are :—

- Jap.*, 7, *Abrus precatorius*, L., 相志子. *C.*, 423, 相思豆.
 " 11, *Acacia Farnesiana*, Willd., 刺蕪花.
 " 67, *Eschinomene indica*, L., 合萌.
 " 92, *Albizia Julibrissia*, Boivin, 合歡.
 " 184, *Apios Fortunei*, Max., 土圞兒, 九羊子.
 " 198, *Arachis hypogæa*, L., 落花生.
 " 302, *Astragalus lotoides*, Lam., 紫雲英. [*Ind. Fl. Sin.*, p. 166, *Astr. sinicus*, L.]
 " 303, *Astragalus reflexistipulus*, Miq., 木黃芪.
 " 398, *Casalpinia pulcherrima*, Swartz, 金鳳花.
 " 399, *Casalpinia Sappan*, L., 蘇方木.
 " 400, *Casalpinia septaria*, Roxb., 雲實.
 " 448, *Caragana Chamissoi*, Lam., 錦雞兒.
 " 534, *Cassia Tora*, L., 決明. [*Pr.*, 216, 狗屎豈.] *F.* 56.
 " 559, *Cercis chinensis*, Bge., 紫荆.
 " 617, *Cladrastis amurensis*, B. & H., *Var. floribunda*, Max., 榎槐.
 " 747, *Cytisus scoparius*, Lk., 金雀花.
 " 778, *Desmodium Oldhami*, Oliv., 山菜豆.
 " 821, *Dolichos caltratus*, Thbg., 鵲豆. [*C.*, 718, 料豆 *Dolichos sp.*]
 " 898, *Erythrina crista galli*, L., 梯姑樹.
 " 900, *Euchresta japonica*, Bth., 山豆根.
 " 1020, *Gleditsia japonica*, Miq., 皂莢. *H.*, 499. *E.*, 304. *S.*, VIII, 3. *C.*, 1331. *A.*, XV, 126.
 " 1148, *Indigofera decora*, Ldl., 胡豆.
 " 1149, *Indigofera tinctoria*, L., 馬棘.
 " 1233, *Lathyrus Davidii*, Hcc., 莊芒決明.
 " 1248, *Lespedeza bicolor*, Turcz., 胡枝子.

- Jap.*, 1253, *Lespedeza sericea*, Miq., 鐵掃帚.
 „ 1254, *Lespedeza striata*, Hkr. & Arn., 鷄眼草.
 „ 1330, *Lotus corniculatus*, L., var. *japon.*, Regel, 百脈根.
 „ 1402, *Medicago denticulata*, Willd., 苜蓿.
 „ 1403, *Medicago Lupulina*, L., 天藍.
 „ 1415, *Melilotus carulea*, Lamk., 零陵香.
 „ 1440, *Mimosa pudica*, L., 含羞草.
 „ 1601, *Phaseolus radiatus*, L., 赤小豆 var. *pendula*, 豎眼.
 [C., 141. Sm., 1. P., XXIV, 9]
 „ 1602, *Phaseolus vulgaris*, L., 菜豆.
 „ 4792, *Psoralea corylifolia*, L., 骨補脂.
 „ 1801, *Pterocarpus flavus*, Lour., 黃柏, 藥木.
 „ 1802, *Pterocarpus santalinus*, L. f., 紫檀.
 „ 1805, *Pueraria Thunbergiana*, Bth., 葛.
 „ 2109, *Sophora angustifolia*, S. & Z., 苦參.
 „ 2110, *Sophora japonica*, L., 槐.
 „ 2194, *Thermopsis fabacea*, Dl., 野決明.
 „ 2236, *Trigonella foenum-graecum*, L., 胡蘆巴.
 „ 2317, *Vicia hirsuta*, Koch., 小巢菜.
 „ 2321, *Vicia unijuga*, M. Br., 歪頭菜.
Pr., 154, *Cajanus indicus*, Spr., 豬屎豇 or 麵豇. *A.*, XV, 97.
B., *Pisum sativum*, 荷蘭豆.
Pr., 241, *Rhynchosia volubilis*, Lour., 假荷蘭豆 or 拈根.
H., 469, *Phaseolus chrysanthus*, Sav. cult., 蠶豆.
H., 470, *Vigna vexillata*, Bth., 野蠶豆.
H., 472, *Dunbarca subrhombia*, Hsl., 野扁豆, also *Cassia occidentalis*, L., [*Pr.* 262].
H., 473, *Amphicarpha Edgworthii*, Bth., & *Rhynchosia volubilis* [*v. Jap.*, 1899] 野毛扁豆.
H., 500, *Gynnocladus chinensis*, Baill., 肉(肥)皂莢. *C.*, 298.
A., XV, 146, *Phaseolus Mungei*, L., 小豆.
C., 1104, *Cajanus indicus*, Spr., 山豆根. *A.*, XV, 147, *Cajanus flavus*, Dl.

357.—**葱** *ts'ung*. According to *W.D.*, 1024, this is a general term for alliaceous plants with fistular leaves; onions, garlies; a leek green. But ancient as well as modern Chinese authors apply the above character, which may be translated by "onion," to a distinct species of *Allium*, never to garlic, for which the Chinese have a peculiar name.

The *ts'ung* in North China is *Allium fistulosum*, L., a native of Siberia, Danria, Northern Mongolia. It is largely cultivated at Peking. This species is remarkable for its never forming a globular bulb, like our common *Allium Cepa*. A good drawing of the plant is found in *Ch.*, III, 32. In Japan likewise the character **葱** is applied to *A. fistulosum*. [See *So moku*, VI, 31.] According to LOUREIRO, *Flora cochin.*, 249, the *tsun* (*ts'ung*) largely cultivated in Cochin-China and Southern China, is the common onion, *A. cepa*. This is most probably of foreign origin. *P.*, XXVI, 9, 14, mentions, besides the common *ts'ung*, of which there are several varieties, the winter *ts'ung*, the spring *ts'ung*, the violet *ts'ung*, etc,—the **胡葱** *hu ts'ung*, or foreign onion, termed also **回回葱** *hui hui ts'ung* or Mohammedan onion. The drawing of this plant given in the *T'u shu tsi ch'eng* [LVI] represents an onion with a globular bulb.

The *ts'ung* of the Chinese Classics is, I believe, *A. fistulosum*. The *Rh ya* does not mention the cultivated *ts'ung*, but notices the *shan ts'ung* or mountain onion [*c. supra*, 2]. In another section of the *Rh ya* the character *ts'ung* is explained by green colour, and in this sense it is understood in the *Shi king* [286].

The *Li ki* speaks repeatedly of the *ts'ung* as an article of food. I, 79:—Steamed onions. 462:—Mince with onions, onions with lard. 463:—Onions and scallions mixed with brine.¹³

¹³ *Li ki*, I, 461, 462:—Vegetables eaten by the ancient Chinese [LEGGE'S *trai s'ati m*]. My remarks in brackets.

The *Shuo wen* defines the character *ts'ung* by *ts'ai*, vegetable.
V. supra, 1-4.

358.—Garlic, *Allium sativum*, L., in Chinese 蒜 *suan*, is also known to the Chinese from a very early period. It is mentioned as a vegetable in the Calendar of the Hsia [121]:—In the 12th month they gather the *suan*, the bulbs of which resemble testicles, 邪 *luan*.

The *Rh ya* [4] mentions a wild kind of garlic, which is also called *li*. The *Shuo wen* explains the character *suan* by 葷菜 (strong smelling vegetable).

The *Rh ya cheng i* relates the following tradition:—It once happened, when the Emperor HUANG TI was ascending the mountain 崑山 *Li shan* [see *Botan. sin.*, I, p. 26, 27] that [some of his followers] were poisoned by the plant 菰芋 *yu yü* (probably an *Arvoidea*), but by eating the *suan* plant, which was likewise found there, they were saved. Since that time the *suan* is cultivated in China as a vegetable. It has the property of destroying the noxious effect of putrid meat and fish.

A good drawing of the Garlic plant *suan* is found in *Ch.*, III, 71. *Amen. eccl.*, 831, 蒜 *san*, vulgo *fir* and *ninnika*, *Porrum commune capitatum*. According to FRANCHET, *Ningiku* is *A. scorodoprasum*, which plant appears in the *So moku*, VI, 30, under the Chinese name of 菰.

SIEBOLD [*Syn. plant. japon.*, 90] gives 大蒜 (great *suan*) as the Chinese name for garlic in Japan.

The ancient Chinese authors quoted in *P.*, XXVI, 18, distinguish the 小蒜 *siao suan*, small garlic, which is said to be that commonly cultivated in China, from the 大蒜 *ta*

Onions (葱)—scallions [韭 *Allium odorum*, *c. infra*, 359], chives [薤 *c. infra*, 360]—mustard [芥 *c. infra*, 362]—lichens [芝 *mushrooms*, *c. infra*, 380].

Of spices there are mentioned:—ginger [薑 *c. infra*, 381]—cinnamon [桂 *c. infra*, 352]—pepper [藜 *Zanthoxylon* or *Erodia*, *c. infra*, 498]—smart weed [蓼 *Polygonum hydropiper*, *c. infra*, 366].

suan, or great garlic, known also by the names 胡蒜 *hu suan*, foreign garlic, and 葫 *hu*. The *Po ieu chi* [3rd century] states that this latter was introduced into China from the West by the famous general CHANG K'ÏEN, in the 2nd century B.C. The *Allium scorodoprasum*, L., or *Rocumbale*, to which the *So moku* refers the *hu*, is a species allied to the common garlic.

359.—The 韭 *kiu*, mentioned in the Classics as a culinary vegetable, is the *Allium odorum*, L., (*A. uliginosum*, G. Don., *A. tuberosum*, Roxb., *A. senescens*, Miq., are the same), W.D., 414, calls the *kiu* erroneously *A. setaceum*. *A. odorum* is a native of *Siberia*, *Mongolia* and the whole of *China*, it seems. It is a common plant in the *Peking* mountains, and is also much cultivated in *Chinese* gardens. The *Chinese* eat the whole plant, especially when in flower in *August*.

P., XXVI, 1. Figured in *Ch.*, III, 64.

Amon. erot., 831, 韭 *kiu*, vulgo *müra müra*. *Porrum* sectivum minus, junci folio. *So moku*, VI, 43, same *Chinese* name, *Allium odorum*.

The *Rh ya* [1] mentions the wild *kiu*, otherwise called *yü*. The *Shuo wen* says that *kiu* is the name of a vegetable.

LEGGÉ translates *kiu* in the *Chinese* Classics by "scallions."

Li ki, I, 117:—According to the rules for the sacrifices in the ancestral temple scallions (*kiu*) are called 豐本 *feng jen* (the rich root). 1, 226:—In sacrificing at the altars to the spirits of the land and grain, the common people in the spring presented scallions (*kiu*).

Calendar of the Hia, 7:—In the enclosed gardens are seen the leeks (*kiu*).

Chou li, I, 109:—Food prepared for the Son of Heaven and offered in sacrifices. BIOT erroneously translates 韭 菹

by "ail mariné." I, 111, the *kin* was one of the seven vegetable pickles [c. 376, note].

Shi king, 232 ["Life in Pin"] :—They offered in sacrifice a lamb with scallions (*kin*).

The *kin* is repeatedly mentioned in the *Shan hai king*.

360.—A fourth species of *Allium* is mentioned in the Classics under the name of 薤 *hiai*. According to W.D., 188, it is the shallot or scullion, *Allium ascalonicum*. LEGGE translates *hiai* by chives or scallions.

Li ki, I, 462 ["Diet of the Ancient Chinese"] :—With fat they used chives (*hiai*). I 463 :—Onions and scallions (*hiai*) were mixed with the brine.

The *hiai* is repeatedly mentioned in the *Shan hai king*. The *Rh ya* writes the character *hiai* 薤 and, besides the cultivated plant [63] mentions [3] the mountain *hiai*, otherwise called *king*.

The *Shuo wen* says the *hiai* is a vegetable; its leaves resemble those of the *kin*.

P., XXVI, 15. Drawing, *Ch.*, III, 35.

Anaen. erot., 831, 薤 *kei* vulgo *oō nira*. *Porrum sectivum latifolium*. *So moku*, VI, 37, same Chinese name, *Allium Bakeri*, Rgl. This species has been observed in a wild state in Japan and Middle China.

The Chinese plant *hiai* is unknown to me. It is not cultivated in the neighborhood of Peking.

Jap., 98, *Allium Bakeri*, Reg., 薤.

" 99, " *esculentum*, L., 冬葱.

" 100, " *fistulosum*, L., 葱.

" 101, " *japonicum*, Reg., 山薤.

" 102, " *Ledebourianum*, Schult., 孝文薤.

" 104, " *nipponicum*, Tr. & S., 山蒜.

" 105, " *odorum*, L., 薤.

" 106, " *porrum*, L., 洋葱.

Jap., 108, *Allium scorodoprasum*, L., 蒴藋.

" 110, " *victoriale*, L., 芥蔥.

361.—There is a vegetable [葍 *feng*] repeatedly mentioned in the *Shi king*. LEGGE thinks that it is a *Brassica* or mustard plant. *W.D.*, 157, *Crucifera*, allied to the mustard. LEGGE observes that in the Japanese plates the *feng* is a sorrel, *Rumex persicarioides*. It has an edible root.

Shi king, 55:—When we gather the mustard plant (*feng*) and earth melons [*r. infra*, 363] we do not reject them because of their roots. 79:—I am going to gather the mustard plant in the east of Mei 洩 (in the north of Honan). 188:—Gather the mustard plant (*feng*).

MAO says the *feng* is the same as 須 *sū*, which latter, in the *Rh ya*, is referred to two different plants. *Rh ya*, 83, we have 龍天薺 *lung t'ien ya*, synonym 須葍蓂 *sū feng tsung*, obscure names not explained by the commentators; and [105] 須 *sū*, synonym 薺蕪 *suu wu*.

The ancient commentators, as quoted in *P.*, XXVI, 36, refer the above names of the *Rh ya* [83 and 105] both to the *feng* of the *Shi king*, which they identify with 蕪菁 *wu tsing* or 蔓菁 *man tsing*, names nowadays applied to the rape turnip, *Brassica rapa*, L. Other ancient authors say that the *sū* or *suu wu* [*Rh ya*, 105] is the 蔓 *mo* of the *Shi king*, a sorrel, *Rumex* [*r. infra*, 441].

The *Fang yen* [1st century B.C.] writes the name *feng* 蕪. It is there stated that this name is applied to the plant in 陳 Ch'en (Honan) and in 楚 Ch'u (Hupei, Hunan), whilst in 魯 Lu and in 齊 T'si (both in Shantung) it is termed 蕪 *jao*. East and West of the (T'ung knan) Pass (in Southern Shansi and Shensi) it is called 蕪菁 *wu tsing*; in 趙 Chao and 魏 Wei (Chili and Northern Shansi) the people call it 大芥 *ta kiai* (great mustard plant).

LU KI explains 葍 *feng* by *wu tsing* and adds that in 幽州 Yu chou (Northern Chili) it is called 芥 *kiai*.

LI SHI-CHEN in *P. [l. c.]* states that the *wu tsing*, a vegetable with yellow flowers, is called *man tsing* in the north of China.

W.D., 1040, says that the *min tsing* is a kind of round turnip, whose tuber is above ground and green coloured, common at Peking; a second sort, the 芥蔓菁 *kiai man tsing* has its white tuber under ground. I may observe that WILLIAMS' turnip with the tuber above ground is not what the people at Peking call *man tsing*. W. means the cabbage-turnip, Kohl-rabi, *Brassica oleracea caulorapa*, with a round fleshy swelling of the stem near the ground, which is much cultivated in North China. Its popular name is *pie la*. This is, it seems, the plant meant in the figure [*Ch.*, IV, 24] under 甘藍 *kan lan* or 菜藍 *p'ei lan*. The *wu tsing* or *man tsing* is represented *Ch.*, III, 60. This is, as I have already stated, the rape, *Brassica rapa*, L. It is not grown to a great extent at Peking. D'INCARVILLE, in his list of Peking plants, calls the *man tsing* "navet" (turnip). By *kiai man tsing* or mustard rape, WILLIAMS means probably a mustard plant with large fleshy roots, of which I shall speak farther on.

Amæn. erot., 822, 燕菁 *lusei vulgo aona*. *Rapum sativum* rotundum. *Idem* radice longa. Under the same Chinese name, in SIEBOLD'S *Syn. plant. ocon. jap.* [278] *Brassica rapa*, Japonice *kalma*. Copiose colitur.

In the *Chou li* [I, 109] where the provisions of the table of the Son of Heaven are detailed, pickled 菁 *tsing* is mentioned. CHENG SZ'-NUNG explains it by *man tsing*, and BIOT translates "marinades de grande montarde." The *tsing* was one of the seven vegetable pickles [r. 376, note].

V. supra, 105.

Jap., 373, *Brassica campestris*, L., 燕菁.

" 374, " *chinensis*, L., 蔓菁.

" 375, " *oleracea*, L., 甘藍.

362.—芥 *kiai* (*kie*) is a name which the Chinese nowadays apply to mustard and the mustard plant. At Peking they cultivate under this name several varieties of *Sinapis juncea*, L., the typical form of which yields the well-known Russian mustard produced at Sarepta.

One of these varieties is grown for its seeds, which are used as in Europe; another for its leaves, eaten boiled or as a salad; a third variety, hitherto unknown to our botanists, which I introduced into Europe some years ago, is cultivated for its large turnip-shaped roots, which are pickled and largely used as food. This is called 大芥 *ta kai* (large mustard).

Li ki, I, 459, 460 ["Diet of the Ancient Chinese"] :—Mustard sauce (芥醬) with minced fish. I, 461 :—Mince in autumn was made with the mustard plant (it is not said whether the seeds, the leaves or the roots were employed).

MENCIVS, 190, 194 :—The character *kiai* (mustard) used as a synonym for 草 (plant).

The *Fang yen* seems to confound the mustard plant with the turnip, for it is there stated (see the passage quoted in 361) that the *feng* in Chao and Wei is called *ta kai* (great mustard). A smaller variety of it was known by the name 辛芥 *sin kai* (pungent mustard) or 鹵芥 *yu kai* (mustard from Yu chou or Northern Chili). This latter was probably *Sinapis juncea* grown for its seeds.

Comp. P., XXVI, 31, 33, Ch., III, 52, 54.

So moku XII, 38, 芥 *Sinapis cernua*, Thbg., *Ibidem*, 39, 大芥 *S. integrifolia*, Willd., 41, 花芥 *S. japonica*, Thbg. See also the *Phon zo*, XLVI, 9-12.

E., 60, family 芥. Figure bad, a copy of *S.*, X, 7.

C., 96, *Brassica* (*Sinapis*) *cernua*, Thbg. *A.*, XV, 137, 芥藍菜 *Brassica chinensis*, L., called at Peking 白菜.

Jap., 2085, *Sinapis cernua*, Thbg., 芥.

" 2086, " *chinensis*, L., 水菜.

" 2087, " *integrifolia*, Willd., 大芥.

363.—The character 非 *fei* occurs only once in the *Shi king* and together with *feng* [r. 361]. LEGGE calls it the earth melon.

Shi king, 53 :—When we gather the mustard plant (*feng*) and the earth melons (*fei*) we do not reject them because of their roots.

CHU HI explains :—The leaves, stalks and root of the *feng* and *fei* are all edible; and if sometimes the root or lower part be bad, yet the whole plant is not on that account thrown away.

In the *CONF. Anal.* [79] we have the phrase 非食飲, which means coarse food and drink.

In the *Rh ya*, the character *fei* is referred to two different plants. In 50 it is identified with 芣 *wen*. KUO P'o says that this is the 土瓜 *t'u kua* which latter term LEGGE translates by "earth melon;" but *kua* is a general name for the fruits of cucurbitaceous plants and may as well be translated by gourd. In *P.*, *t'u kua* is given as one of the names for *Thladiantha dubia*, Bge., [r. *infra*, 386]. The same character [*fei*] in the *Rh ya* [106] is identified with 葍 *si ts'ai*, regarding which KUO P'o says that it is an edible plant, growing in marshy places and resembling the *wen tsing* (turnip), but it has violet flowers.

MAO identifies the *fei* of the *Shi king* with *wen* in the *Rh ya* [50].

LU KI says :—The *fei* resembles the 葍 *ju* [r. *infra*, 442, *Calystegia* ?]. It has a coarse stem, thick, long leaves covered with hairs. The people eat it (not said what part of the plant) steamed; it is of an agreeable, sweet taste. In 幽州 Yu chow (Northern Chili) they call it *wen*. In the *Rh ya* it is *si ts'ai*. In 河內 Ho nei (Southern Shansi) it is known by the name of 宿菜 *su ts'ai*.

The *fei* is not spoken of in the *Pen ts'ao*. From the above vague accounts given by the ancient authors regarding this

plant, it is impossible to guess what it was. WILLIAMS [*Diet.*, 138] is of opinion that it is a cruciferous plant, perhaps *Crambe tartarica* (a quite arbitrary identification). LEGGE has no doubt that the *fei* was a kind of radish.

E., 104, family 菲, without figure [*v. supra*, 50].

364.—As has been already noticed [*v. supra*, 346] the character 苣 *k'ü*, which is met with thrice in the *Shi king*, and which LEGGE translates invariably by "white millet," has, according to MAO's interpretation, three different meanings in the *Shi*. In the passage p. 284 he makes it to mean a vegetable [*v. supra*, 24].

LI KÜ says:—The *k'ü* is a vegetable which resembles the 苦蕒 *k'ü ts'ai* [see 365, *Sonchus* or *Lactuca*]. Its stalk is of a pale green colour. The leaves are succulent, contain a white milky juice, are edible both raw and cooked. The name *k'ü* for this plant is usual in 青州 Tsing chon (Southern Shantung). The best is found in 西河 Si ho and 雁門 Yen men. The people there (土人, natives; but another reading has 胡人, foreigners) are very fond of it and do not allow its being exported beyond the frontier.

In *P.*, XXVII, 17, the *k'ü* is identified with the 白苣 *pai kü*, a kind of lettuce.

The *Peu ts'ao* gives *k'ü* also as a synonym for *t'ü huang*, *Rehmannia glutinosa* [*v. supra*, 180].

365.—茶 *t'u*. The Chinese commentators of the Classics agree that this character in the *Shi* is applied to several distinct plants. More generally it denotes, as LEGGE correctly states, the sow-thistle, *Sonchus*. Several species of wild-growing *Lactuca* also go under this name.

Compare *supra*, page 33, where *t'u* is given as a synonym for 苦蕒 *k'ü ts'ai* (bitter vegetable).

Shi king, 56:—Who says that the sow-thistle (*t'u*) is bitter? It is as sweet as the shepherd's purse [*tsi*, *v. supra*, 367].

188 :—Would you gather the sow-thistle (*t'u*) at the foot of Shou yang? 231 ["Life in Pin"] :—7th month. They gather the sow-thistle (*t'u*). 438 :—The sow-thistle (*t'u*) is as sweet as a dumpling. In 525 we have the term 茶毒 *t'u tu*, here meaning figuratively "bitter and poisonous." CHU HI says :—The *t'u* is a bitter vegetable, whose taste is bitter and its juice acrid and injurious to life, hence it is called *t'u tu*.

MAO explains *t'u* in the above passages by *k'u ts'ai*, as in the *Rh ya*.

LU KI :—The *t'u* or *k'u ts'ai* grows in mountain fields and marshes. After hoar frost the plant becomes sweet, soft and pleasant, which explains the sentence in the *Shi* "the *t'u* is as sweet as a dumpling." In the chapter *Nei tsz'* of the *Li ki* it is said that sucking-pig was stewed and wrapped up in the leaves of the *k'u ts'ai*.

The passage referred to by LU KI is found in the *Li ki* [I, 460]. The Chinese text has only 苦, the commentators say 苦菜 is meant, and K'UNG YING-TA explains that the *Sonchus* leaves drive away the bad smell.

Li ki, I, 268, [Yue ling] :—First month of summer. The sow-thistle (*k'u ts'ai*) is in seed.

Chou li, II, 509 :—Blancheur du jus de la plante *tou* (茶).

Calendar of the Hia [57] :—4th month. Collected are the sow-thistles (*t'u*); [89] :—7th month. Luxuriant are the sow-thistles.

In the *Shi king* [146] *t'u* means flowering rushes. LEGGE translates :—The girls were like flowering rushes (*t'u*). MAO explains here *t'u* by 茭茶 (unknown to me,—the first character denotes a water-plant, *Euryale ferox*). CHENG HUAN explains it by 茅秀 (flowering *mao* grass) [*c. infra*, 460]. *T'u* has the same meaning in the *Shi* [p. 234], where MAO explains it by 茭菰, which latter term is referred by K'UNG YING-TA to the *Rh ya* [214] (rushes). 菰 stands for 茭, see the *Rh ya* [209, 210].

T'u has the same meaning in the *Chou li* [I, 381]. Le préposé à la plante *tu* (茶) est chargé de réunir dans leur saison les plantes *tu*, pour les employer dans les cérémonies funèbres. CHENG HŪAN here explains *t'u* by 茅秀, (flowering rushes) as above. BIOT reads *mao jou* and identifies it with *Sonchus*.

Finally, the character *t'u* appears in the *Shi king* [604] coupled with *liao*, 茶蓼, which MAO explains by 水草 (water-plant), and LEGGE renders by "smart weed," *Polygonum persicaria*. CHU HI observes that *t'u* and *liao* are the same plant, called *t'u* in the dry soil, *liao* in the wet, and not to be confounded with the *t'u* or *k'u ts'ai* (sow-thistle).

See regarding the *k'u ts'ai* or *t'u*, P., XXVII, 14. The plant figured under these names in Ch., III, 15, seems to be *Lactuca versicolor*, Sch. Bip. HENRY [l. c., 189]:—*k'u ts'ai* in Hupei is *Lactuca spicata*, Miq.

SIEBOLD [*Syn. plant. japon.*, 219]:—苦菜 *kesi asami*, *Sonchus oleraceus*, L., *Herba edulis*. The same, *So moku*, XV, 6.

366.—*Liao* is a general term for the genus *Polygonum*, of which there are in China a great number of species. Some of them have different Chinese names. [See HENRY, l. c., 239.] LEGGE renders *liao* by "smart weed," *Polygonum persicaria*. The character *liao* appears twice in the *Shi king*. In 600 it is used in the sense of "bitter experience," and in 604 it is coupled with *t'u* [see 365].

MAO explains *liao* by "water-plant," CHENG HŪAN by 辛苦之菜 (pungent and bitter vegetable). [See also the *Rh ya*, 65].

Li ki, I, 460, 461 ["Diet of the Ancient Chinese"] :—The *liao* mentioned as a spice: a sucking-pig was stewed, wrapped up in *Sonchus* leaves and stuffed with smart-weed.

P., XVI, 76, *liao*. The drawing under *liao*, Ch., XI, 57, seems to represent *Polygonum hydropiper*, L., which may well have been the plant of the *Shi*.

Amœn. erot., 891, 蓼 *rio*, vulgo *tade*. *Persicaria vulgaris* aeris. Hydropiper, ejus folia indigenis pro pipere serviunt.

So moku, VII, 57, 蓼 or 辣蓼 (pungent *liao*) *Polygonum hydropiper*. *Ibidem*, 63, 馬蓼 (horse's *Polygonum*) *P. persicaria*, L. Comp. also *Ch.*, XI, 59.

E., 58, v. *supra*, 102.

S., VII, 3 : *Sat.*, 198. *A.*, XV, 169.

Jap., 1686, *Polygonum aviculare*, L., 蒭蓄.

" 1687, " *Bistorta*, L., 拳參.

" 1688, " *Blauwi*, Meisn., 馬蓼.

" 1690, " *chinense*, L., 赤地利.

" 1692, " *cuspidatum*, S. & Z., 虎杖.

" 1694, " *filiforme*, 金線草.

" 1695, " *flaccidum*, Roxb., 水蓼.

" 1698, " *lapathifolium*, Ait., var. *incanum*, Led.,

毛蓼.

" 1701, *Polygonum multiflorum*, Thbg., 何首烏.

" 1704, " *orientale*, L., var. *pilosum*, Meisn., 荭草.

" 1705, " *perfoliatum*, L., 杠板歸.

" 1713, " *strigosum*, R. Br., 雀翹.

" 1716, " *Thunbergii*, S. & Z., var. *hastato-trilobum*,

Fr. & S., 苦蕎麥.

" 1717, *Polygonum tinctorium*, Lour., 藍.

" 1873, *Rhœum undulatum*, L., 大黃.

367.—The 蓼 *tsi* plant mentioned once in the *Shi King*, has been correctly identified by LEAGUE with the "shepherd's purse," *Capsella bursa pastoris*, Moench. Page 56 :—The sow-thistle is as sweet as the shepherd's purse. It is a common plant in China, and still much used as a pot-herb. See the *Rh ya*, 103 and 18. In *P.*, XXVII, 4, it is described as an herbaceous, edible plant with white flowers. The fruit a silicle (莢) resembling the 萍 *ping* (duckweed, *Lemna*) three cornered, containing small seeds. Under the above Chinese names the plant is figured in the *Kiu huang* [LIX, 27] and in *Ch.* [III, 46].

Amaro. erect., 897, 葵 *sei* vulgo *nadsuna*. *Bursa pastaris* major, folio sinnato, C. Banh, P. See also SIEBOLD, *Syn. plant arcan. jap.*, 284, *Capsella b. past.*, same Chinese name. Japonice *natsua*; Herba edulis. *So moku*, XII, 2.

E., 60, family 葵, with figure of *Capsella*.

S., X, 41. *Jap.*, 444.

368.—葵 *K'ui*. This plant is mentioned in the *Shi king*, 231 ["Life in Pin"] :—In the seventh month they cook the *k'ui*. LEGGE, *l. c.* :—CHU HI simply says that *k'ui* is a vegetable. One name of it is 莼葵 *chung k'ui* which MEDHURST says is *Alsine* or *Pimpernel*.

Chou li, I, 110 :—Food prepared for the Son of Heaven, or offered in sacrifices. Les terrines de l'offrande des aliments sont remplies avec des manves (*k'ui*) confites, etc. I, 111, CHENG HUAN explains that *k'ui* was one of the 七菹 (seven vegetable pickles) [*c. infra*, 376, note].

K'ui is a general name for certain malvaceous plants, *Malva*, *Althæa*, *Hibiscus*, etc. The *k'ui* mentioned in the *Shi king* and *Chou li* is probably the *Malva verticillata*, L., a common plant throughout China. It possesses an abundance of mucilage, and the Chinese use it as a pot-herb.

P., XVI, 22 :—*K'ui*, also 冬葵 *tung k'ui* (winter-mallow) and 滑菜 *hua ts'ai* (mucilaginous vegetable). The plant figured under these names in *Ch.*, III, 1, is *M. verticillata*. See also the *Kiu huang*, LVIII, 32, and HENRY, *l. c.*, 156.

Amaro. erect., 858 :—葵 *Ki*, vulgo *arai*, in specie *kara arai* dicta. *Malva hortensis* sive *rosa*, vulgo *Malva arborescens*. THUNBERG *Flora japon.* [271] refers KEMPFFEN's names to *Malva mauritiana*, L.

So moku, XII, 56 :—冬葵 *Malva pulchella*, Bernh.

As to the *chung k'ui*, erroneously identified by CHU HI with the *k'ui*, this is mentioned in the *Rh ya* [148], perhaps *Basella*,

V. supra, 76, 115, 136, 148. *Jap.*, 1392, *Malva pulchella* (= *M. verticillata*, L.) 冬葵, *Jap.*, 1394, *M. sylvestris*, L., 錦葵.
V. next number.

369.—*葎 K'iao*, a plant once mentioned in the *Shi king*. LEGGE says:—This is, according to MEDHURST, the “thorny mallow,” which is a translation of the Chinese synonym 荊葵 *king k'ui*. In the Japanese plates it is a hollyhock.

Shi king, 207:—A gentleman of a party addresses a lady: “I look on you as the flower of the thorny mallow (*k'iao*).”

Rhya, 76, where *p'ï fou* is given as a synonym for *k'iao*.

LU KI:—The *k'iao* is also called 茺茺 *p'ï fou* and 荊葵 *king k'ui*.

The plant resembles the *yu tsing* (turnip) [*v. supra*, 361], is edible and slightly bitter. Its flowers are greenish violet.

This plant is, according to *K.K.F.P.*, XLVI, 23, the same as the 錦葵 *kin k'ui* or *Malva sylvestris*, L., also a common plant in North China. Good drawings of it in *Ch.*, III, 6, and the *So moku*, XII, 57, under the above Chinese name.

MEDHURST and LEGGE are mistaken in translating *king k'ui* by “thorny mallow.” 荊 *king* is the name of a plant (*Vitex*) but its original meaning is that of one of the nine ancient divisions of China (Hunan and Hupei), and in this sense the *king* is here to be taken. *Malea sylvestris* has no thorns. WILLIAMS [*Diet.*, 374] commits a double error in defining *k'iao* as a thorny kind of sun-flower.

Jap., 93, 124, *Alcea* (*Althæa*) *rosea*, L. (Cav.) 蜀葵.

„ 1043, *Gossypium indicum*, Lam., 草綿.

„ 1085, *Hibiscus Hamabo*, S. & Z., 黃槿.

„ 1086, „ *Manihot*, L., 黃蜀葵.

„ 1087, „ *mutabilis*, L., 木芙蓉.

„ 1088, „ *rosa-sinensis*, L., 扶桑.

„ 1089, „ *syriacus*, L., 木槿 [*v. supra*, 6, 136].

„ 1090, „ *ternatus*, Cav., 野西瓜苗.

370.—**芹** *K'in*. LEGGE says:—Cress, so figured in the Japanese plates. The term is now applied to cress, parsley, celery.

Shi king, 402:—Right up bubbles the water from the spring and they gather the cress (*k'in*) about it. 616:—The college, surrounded with a canal and sown with cress (*k'in*) and other water-plants [*v. infra*, 398, 401].

Chou li, I, 110:—Provisions for the table of the Son of Heaven and offered in sacrifice. Les terrines supplémentaires sont remplies avec des plantes confites de l'espèce *k'in* (**芹**). I, 111:—*k'in* was one of the seven vegetable pickles [see 376, note].

Rh ya, 116:—The *k'in* is also called 楚葵 *ch'u k'ai*.

What the Chinese cultivate at Peking under the name of *k'in* or *k'in ts'ai*, also 旱芹 *han k'in* (*k'in* cultivated in dry soil) is the common celery, *Apium graveolens*, L. *Ch.*, III, 40, verso:—The character *k'in* is written in various ways in Chinese works, viz., 芹, 勤 and 蕪.

The 水芹 *shui k'in* (water *k'in*) is another umbelliferous plant. *P.*, XXVI, 58, *Ch.*, III, 40, *K'in huang*, LVIII, 37.

According to LOUREIRO, [*Flora, cochin.*, 223] *shui k'in* (*shui k'in*) in Southern China is *Sium sisatum*, L. A pot-herb cultivated in water. HENRY, l. c., 67:—*Shui k'in ts'ai* in Hupei is *Oenanthe stolonifera*, DC.

Amen. eccl., 825:—**芹** *K'in* vulgo *Seri* *Petroselinum* folio Alsines, MORRIS Gallinæ dietæ. THUNBERG, [*Flora, jap.*, 120] refers KÄMPFER's *seri* to *Apium petroselinum*. SIEBOLD, *Syn. plant. aron. jap.*, 246:—**芹** *Apium seri*. So moku V, 19:—水蕪 *Oenanthe stolonifera*. In Japanese *seri*.

V. 38, 116. *Jap.*, 1505, *Oenanthe stolonifera*, DC., 水蕪.

Other Umbelliferae are mentioned:—

Jap., 391, *Bupleurum falcatum*, L., 北柴胡.

" 394, " *sachalinense*, Fr. Schm., 南柴胡.

" 539, *Caucalis* [*v. supra*, 91].

- Jap.*, 565, *Chamaele tenera*, Miq., 竹葉.
 " 656, *Conioselinum univittatum*, Turcz., 箭筈.
 " 675, *Coriandrum sativum*, L., 胡菜.
 " 762, *Daucus carota*, L., 胡蘿蔔.
 " 964, *Feniculum vulgare*, Gaertn., 茴香.
 " 1114, *Hydrocotyle sibthorpioides*, Lamk., 石胡荽.
 " 1264, *Ligusticum acutifolium*, S. & Z., 當歸.
 " 1500, *Nothosmyrnum japonicum*. [I. *supra*, 413.]
 " 1533, *Osmorrhiza japonica*, S. & Z., 野胡蘿蔔.
 " 1595, *Peucedanum japonicum*, Thbg., 防葵.
 " 1635, *Pimpinella sinica*, Hcc., 苦蕒菜.
 " 1987, *Sauicula europaea*, L., 雙豆菜.
 " 2052, *Selinum japonicum*, Miq., 蛇牀子.
 " 2075, *Sesili Libanotis*. [I. *infra*, 434.]
 " 2083, *Siler divaricatum*, Bth. & H., 防風.

371.—**蕒** *Kin*. LEGGE translates this character correctly by violet. It is mentioned in the *Shi king* and in the *Li ki*, in the latter together with the **蕒** *huan* which LEGGE calls "the large-leaved violet."

Shi king, 438 :—The plain of Chou looked beautiful and rich with its violets (*kin*) and sow-thistles as sweet as dumplings.

Rh ya, 134 :—*Kin* plant, K'uo P'ao identifies it with the 烏頭 *wu t'ou* or crow's head. See also the *Rh ya*, 128. MAO says only that *kin* is a vegetable; the *Shuo wen* states that the root of the *kin* resembles that of the *tsi* (shepherd's purse) and the leaves those of the willow. It is eaten cooked and is of a sweet taste.

Hia Calendar, 29 :—DOUGLAS translates here *kin* erroneously by *Ixora*.

Li ki, I, 451 :—The ordinary or large-leaved violets (*kin* and *huan*) mentioned as vegetables. CHENG HUAN says :—The *huan* is a kind of *kin*. In winter they used to eat the *kin*, in summer the *huan*.

P., XXVI, 59, *kin*. *Ch.*, XII, 9, *kin kin ts'ai*, a *viola* figured. See also the *Kiu huang*, XLVIII, 26.

Amor. exot., 875, 堇菜 *kin sai* vulgo *sunire*. *Jacea* tricolor, sive flos Trinitatis (*Viola tricolor*). Under the same Chinese name, *So moku*, XVII, 61 :—*Viola japonica*, LANGSD. *Ibidem*, 58 :—堇 *V. pycnophylla*, FRANCH.

The name 紫堇 *tsz' kin* (violet or purple *kin*) in the *So moku* [XIII, 2] is applied to *Corydalis incisa*, Pers. [Comp. *Ch.*, III, 43 : *P.*, XXVI, 60.]

Jap., 684, *Corydalis incisa*, Pers., 紫堇.

" 687, " *Wilfordi*, Reg., 黃堇.

" 2356, *Viola sylvestris*, Kit., var. *grypoceras*, A. Gray, 堇菜.

" 2353, " *pinata*, L., var. *charophylloides*, Regel., 胡堇菜.

" 2359, *Viola vaginata*, Max., 葑. Comp., *Jap.*, 2351, *Viola Patriinii*, DC., Var. *chincensis*, Ging., 紫花地丁.

312.—葑 *P'ing*. LEGGE makes it to be a kind of celery. WILLIAMS [*Ibid.*, 702] thinks that it is a species of succulent cress; but we are not told whereupon these identifications are founded.

Shi king, 245 :—With pleasant sounds the deer call to one another, eating the celery (*p'ing*) of the fields.

MAO refers the *p'ing* to the 萍 *p'ing* in the *Rh ya* [113], which is duckweed, whilst CHENG HUAN makes it the same as the 萍 *p'ing* or 蘼蒿 *lai siao* [*Rh ya*, 119], which may be an *Artemisia*.

LU KI :—The leaf of the *p'ing* is green and white (LEGGE understands white inside); the stalk is like a chopstick (LEGGE translates "like a quill.")

The plant is fragrant and may be eaten both raw and cooked.

Ilia Calendar [81] :—Seventh month. In the low pools grows the *p'ing* plant. [84] :—The *p'ing* flourishes.

[See also *infra*, 375, at the end.]

373.—筍 *Sūn* (*sun*). The shoots or sprouts of bamboo. The character is also written 筭.

Shi king, 548 :—The *sūn* or tender sprouts of bamboo mentioned in connection with a banquet described there.

LU KI :—*Sūn* are the young shoots of bamboo. All the bamboos generally put forth their shoots in the fourth month, only the 巴竹 *pa chu* (bamboo from Sz'ch'uan) shoots out in the eighth or ninth month. These young shoots when they come out from the ground, being several inches long, are used for food. They are steeped in bitter wine or prepared with soy (豉汁). Bamboo-sprouts best suit wine.

Chou li, 110, 111 :—Provisions for the table of the Son of Heaven and offered in sacrifice. Pickled bamboo-sprouts, one of the seven vegetable pickles [see 376, note].

[Compare the *Rh ya*, 42, and *infra* 564 筍 *mei*, 565 *Bambusa edulis*.]

374.—筍 *Tai*, also written 筍.

Chou li, I, 110, 111 :—Provisions for the table of the Son of Heaven and offered in sacrifice. Des pousses marinées de petit roseau (*tai*). This was one of the seven vegetable pickles [see 376, note].

CHENG HŪAN refers to the *Rh ya* [174] where *tai* is explained by 箭萌 sprouts of a small bamboo [*r. infra*, 564].

375.—蒲 *P'u*. LEGGE translates rushes, bulrush, cat's tail.

Shi king, 548 :—Description of a banquet. *P'u* mentioned together with bamboo-sprouts. LEGGE says an edible rush, the sweet flag (which latter is *Acorus calamus*). MAO explains it by 蒲葍 *p'u jo*.¹⁴ CHENG HŪAN says it is the same as the 深蒲 *shen p'u* in the *Chou li*. This latter is noticed there [I, 110, 111] among the vegetable dishes

¹⁴ Regarding the meaning of *jo*, see *supra*, 99, *infra*, 395, W.D., 295.

presented to the Son of Heaven. It was one of the five salted preparations [see 376, note]. BIOT calls it "pieds de junc pris au fond de l'eau." Commentator A. (CHENG SZ'-NONG) :—On prend l'espèce de junc appelée *pou* lorsqu'elle commence à pousser au fond de l'eau. The character *shen* means deep.

Shi king, 213 :—By the shores of that marsh there are rushes (*p'u*) and lotus plants. 401 :—The fishes are among the pond-weed, sheltered by the rushes (*p'u*).

In the *Chau li* [II, 270, 271] the *p'u* (BIOT translates junc) is mentioned as produced in the Provinces of Tsing chou and Yen chon (Honan, Shantung).

The *p'u* was also used for making mats. See the *Li ki*, II, 185 [Mourning Rites] :—The body of a great officer was laid on a mat of typha grass (蒲席).

In *P.*, XIX, 15, the *p'u* of the Classics is identified with the 香蒲 *hiang p'u* (fragrant *p'u*), which is the common name for the reed-mace *Typha latifolia*, L., the young shoots of which are eaten, and the leaves used for making mats. The mace, or rather the pollen, is 蒲黃 *p'u huang*. Rude figures of the plant in the *Kin huaug*, LIII, 12, and in *Ch.*, XVIII, 4. In Southern China, where *typha* is unknown, the name *p'u* is applied to a *Cyperacea*, the *Lepidosia mucronata*, Rich., [*c. infra*, 455].

Amern. erot., 900, 蒲 *fo*, vulgo *kamma*. Gramen cyperinum palustre.

SIEBOLD, *Syn. plant. æcan. jap.*, 7, same Chinese character : *Typha angustifolia*. Japonice *gama*. Usus pro fomite. *Phan zo*, XXXIII, 18-20, 香蒲 *Typha angustifolia*.

Regarding the term 蒲柳 *p'u liu* [*c. infra*, 525].

In LEGGE's translation of the *Li ki* [II, 387] we read :—During the mourning rites for a mother, the son occupied the unplastered chamber, sleeping on typha rushes. The

character translated by typha rushes is 荻 *hu*. The Chinese commentator explains it by 蒲 草 *p'u p'ing* and says they made 席 mats of it. But in the *Rh ya* [180] *hu* is given as a synonym for 地黃 *ti huang*, *Rehmannia glutinosa*.

E., 68, v. *supra*, 98. For 黃蒲 read 蒲黃. The figure of *Typha* bears the name 蒲筴.

S., I, 42. *C.*, 1054. *A.*, XV, 181, *Typha latifolia*, L. *Sm.*, 224.

Jap., 2253, *Typha japonica*, Miq., 香蒲. *Comp.*, *Jap.*, 2113.

Sparganium longifolium, Trcz., 黑三稜.

376.—Among the vegetable dishes furnished for the table of the Son of Heaven, as mentioned in the *Chou li* [I, 109–111] there is one called 菖本 *ch'ang pen* (root of the *ch'ang*) which the Commentator A. (CHENG SZ'UNG) defines by 菖蒲 *ch'ang p'u* and BIOT translates by Galanga.

The character 菖 *ch'ang* is applied in China and Japan to *Acorus*, of which several species, including the common sweet flag (*A. calamus*) are found in Eastern Asia.

P., XIX, 8 and 13, 菖蒲 *ch'ang p'u*, 石菖蒲 *shi ch'ang p'u*, 白菖 *pai ch'ang*, names for various species of *Acorus*. Corresponding drawings *Kiu huang*, LI, 9, and *Ch.*, XVIII, 2.

LOUREIRO, *Flora coch.*, 259, *Acorus calamus* (LOUREIRO's plant is *A. terrestris*, Rumphius) *sinice*: *xe cham pu*. *Ibidem*, 258, *Orontium cochinchinense* (*Acorus cochinchinensis*, Kth.) *sinice*: *xni cham pu*.

Amæn. exot., 900, 菖 *sju*, vulgo *soobu*. Herba arundinacea palustris, foliis liliaceis, ob pulchritudinem in hortis et cisternis recepta; ejus tres habentur species foliorum magnitudine differentes: *soo*, foliis longissimis; *ajami*, medio-cribus; et *siki soba* parvulis, quæ in ficilibus asservatur. THUNBERG [*Flora japon.*, 33] refers KEMPFER's plant to *Iris versicolor* (i.e., *I. lacigata*, Fisch.) But he is, it seems, mistaken, for KEMPFER, judging from the Japanese names he gives, speaks of *Acorus*.

SIEBOLD, *Syn. plant. acon. jap.*, 4, *Acorus calamus*, L., var. *asiatica*. Japonice *sjoolu*, sinice 泥菖 (the first character means mud). Usus pro ceremoniis. The same is figured by SIEBOLD [*Icones ined.*, VIII].

SIEBOLD, *Syn. plant. acon.*, 5, *Acorus gramineus*, Ait. Japonice *seki-sjou*, sinice : 石菖蒲. Same figured in *Icon. ined.*, VIII. Same Japanese and Chinese names given in the *So moku* [VI, 11] to *Acorus gramineus*. This plant, according to MIGUEL (quoted by SIEBOLD) has been introduced into Japan from China. SIEBOLD says :—*A. gramineus* et *A. pusillus* pro septis lacuum artificialium in hortis, nec non ob virtutem in contusionibus colitur.

So moku, VII, 9, 10, 白菖 (white *ch'ang*), japonice *sjolar*, *A. spurius*, Schott. The same in *Phon zo*, XXXIII, 16, 17. *Ibidem*, 13-15, under 菖蒲, five drawings representing species of *Acorus*, but only leaves.

The *ch'ang pen* mentioned in the *Chou li* [I, 110, 111] as a vegetable dish, was one of the five salted preparations.¹⁵

Tso chuan, 217 [B.C. 628. An entertainment described] :—There were the pickled root of the sweet flag cut small, rice,

¹⁵ We read in BIOT's translation of the *Chou li* [I, 111] :—

Les employés au vinaigre [醃人, *supra*, 349] sont chargés de préparer les cinq marinades (五齎 *wu tai*, the five salted preparations) et les sept conserves végétales (七道 *te'i tai*, the seven vegetable pickles).

D'après le Comm. B. (CHENO HCAN) les cinq marinades étaient :—

1.—Racines de Galanga confites, *tehang pou* (roots of *Acorus*).
2.—Les grandes huîtres 蜆. 3.—Cotelettes de porc. 4.—Tranches de bœuf. 5.—Pousses des pieds de juncs [sprouts of *Typha*, see 375].

Les sept conserves végétales étaient :—

1.—韭 (*Allium odoratum*, see *supra*, 359). 2.—菁 (Salted turnips, *supra*, 361). 3.—茼 (*Brassica peltata*, a water-plant, *infra*, 398). 4.—葵 (*Meloe*, see *supra*, 368). 5.—芹 (*Eranthe stolonifera*, a kind of celery, *supra*, 370). 6.—茆 (small bamboo sprouts, *supra*, 374). 7.—筍 (bamboo-sprouts, *supra*, 373).

millet (black), and the salt in the form of a tiger 有昌獸
白黑形鹽.

E., 68. *Jap.*, 46, *Acorus Calamus*, L., 水菖蒲. [*V. Sm.*, 4.]

" 47, " *gramineus*, Ait., 石菖蒲.

" 48, " *pusillus*, Sieb., 錢蒲.

" 49, " *spurius*, Schott., 白菖.

377.—The 蕨 *kûe* and the 薇 *wei*, two plants mentioned in the *Shi king*, and twice together, are, according to LEGGE, two ferns. He terms the first "turtle-foot fern" and the other "thorn fern."

Shi king, 23, 24 :—I ascended the hill in the south and gathered the turtle fern and the thorn fern. Also 358, 359.

The *kûe*, also called *pie*, is mentioned in the *Rh ya* [185].

LU KI :—The *kûe* is also called 蕨 *pie*. It is a mountain vegetable. In 周 'Chou and 秦 Ts'in (Southern Shensi and Eastern Kansu) they call it *kûe*, in 齊 Ts'i and 魯 Lu (both in Shantung) it is *pie*. When it first begins to grow it resembles the foot of the turtle called *pie*, whence the name. Its stem is of a dark purple colour. The plant is eaten like the *k'ui* or mallow.

P., XXVII, 25 :—The *kûe* is described as a common mountain plant. The young leaves are rolled up and resemble a child's fist. When expanded they resemble the tail of a phoenix. The stalks are cooked for food. The root is of a purple colour outside and contains within a white flour which can be eaten.

The figure under *kûe* in *Ch.*, IV, 17, represents a fern, it seems *Pteris aquilina*, L., the common brake. According to HENRY, [*l. c.*, 91] *kûe* in Hupei is *Pteris aquilina*. An arrowroot is prepared from the rhizome. *Pt. aquilina* is a common mountain plant all over China and Japan.

Amæn. esot., 蕨 *ketz*, vulgo *caribî*. Filix in genere, et in specie Filix ramosa major, pinnulis obtusis non dentatis. (B.P. Scapi novelli ejus inter olera recipiuntur. This is

Pteris aquilina. See drawing, *Phon* 20, XLIX, 27, 28.—SIEBOLD [*Syn. plant. orcon. jap.*, 444] *Pteris aquilina*, japonice *warabi*. Frondes juniores, foliis nondum explicatis, edules sunt et fere ubique fasciculi ejus in tabernis venales exponuntur mensibus Aprili ac Majo. Radix lignosa conditur et effusa prima aqua, amylo sic secreto, quod sub nomine *warabi nori*, venit pressa, coquitur, atque licet tunc nigricet, a pauperioribus comeditur.

V. supra, 177. *Jap.*, 1794. Other Filices are mentioned:—

Jap., 61, *Adiantum monochlamys*, Eat., 石長生.

" 174, *Angiopteris evecta*, Hoffm., 觀音座蓮.

" 246, *Aspidium aculeatum*, Sw., var. *japonicum*, Fr. & S.,

毛蕨.

" 253, *Aspidium falcatum*, Sw., 貫衆 [*v. supra*, 110].

" 274, *Asplenium nipponicum*, Metten., 倒掛草.

" 275, " *normale*, Don., 鐵腳鳳尾草.

" 368, *Botrychium ternatum*, Sw., 陰地蕨.

" 369, " *virginicum*, Sw., 蕨葉.

" 557, *Ceratopteris thalictroides*, Brong., 水蕨.

" 723, *Cyathea spinulosa*, Wall., 紗櫛.

" 763, *Davallia bullata*, Wall., 海州骨碎補.

" 767, " *tenuifolia*, Sw., 烏韭.

" 831, *Drymoglossum carnosum*, Hk., 螺髻草.

" 1051, *Gymnogramme japonica*, Desv., 蛇眼草.

" 1359, *Lycopodium japonicum*, Sw., 海金沙.

" 1517, *Onychium japonicum*, Kze., 小雉尾草.

" 1520, *Ophioglossum vulgatum*, L., 瓶爾小草.

" 1538, *Osmunda regalis*, L., var. *japonica* Milde, 薇 [*v. infra*, 378].

" 1722, *Polypodium ensatum*, Thbg., 水石草 [*v. infra*, 455].

" 1723, *Polypodium hastatum*, Thbg., 金雞尾, 鵝掌金星草.

- Jap.*, 1725, *Polypodium lineare*, Thbg., 瓦 韋, 劍 丹.
 „ 1727, „ *lingua*, Sw., 石 韋, 飛 刀 劍.
 „ 1733, „ *vulgare*, L., 水 龍 骨.
 „ 1794, *Pteris aquilina*, L., 蕨.
 „ 1799, „ *serrulata*, L. f., 井 口 邊 草, 鳳 尾 草.
 „ 2030, *Scolopendrium vulgare*, Sm., 水 扒 周.
 „ 2386, *Woodwardia japonica*, Sw., 狗 脊.

378.—The 薇 *wei*, mentioned together with the *kue* fern in the *Shi king* [23, 358, 359] is called thorn fern by LEGGE. He relies for this identification upon CHU HI, who says that the *wei* resembles the *kue* but that it is rather longer and has spinous points and a bitter taste. But CHU seems to be mistaken, for none of the earlier commentators on the *Shi king* ventured to refer the *wei* to a fern. MAO says simply it is a vegetable, the *Rh ya* [167] states only that it grows by the edge of the water; the *Shuo wen* says it is a vegetable which resembles the 藿 *ho* [*r. supra*, 351], thus it may be supposed that it is a leguminous plant.

LIU KI states:—The *wei* is a mountain vegetable. It is a creeper, in its stem and in the leaves it resembles the 小 豆 *siao tou* [*Phaseolus Mungo*, *r. supra*, 355]. It resembles this latter plant also in taste. The leaves are eaten both raw and cooked. Nowadays it is grown in the government's gardens and used at the sacrifices in the ancestral temple.

P., XXVII, 26, describes the *wei* as a leguminous plant, also called 野 豌豆 *ye wan tou* (wild pea) and eaten as a pot-herb.

The drawing in *Ch.*, IV, 19, representing the *wei*, is rude, only leaves which seem to refer to a leguminous plant.

At Peking the name *wei* is applied to *Vicia gigantea*, Bge. The 野 豌豆 in the *So moku* [XIII, 12] is *Lathyrus maritimus*, Bigel.

I may, however, observe that in Japan, the Chinese character 薇, in accordance with CHU HI's view, is applied

to a fern. The *Phon zo* [XLIX, 29, 30] figures under this name *Osmunda regalis*, L. But this plant also has no thorns.

There is a plant which in China and Japan is termed 白薇 (the white *wei*). The *So moku* [IV, 26-29, 31] figures under this name various species of *Vincetoxicum*.

Jap., 1538, *Osmunda regalis*, L., var. *japonica*, Milde, 薇.

„ 2330, *Vincetoxicum atratum*, Morr. & Decn., 白薇. A good figure, *v. E.*, 157, and *infra*, 468.

379.—諸莢 *Shu yā*. This name of a plant is repeatedly met with in the *Shan hui king*. K'uo P'o says that it has an edible root, resembling that of the 羊蹄 *yang ti* (*Rumex*). In Kiangnan the name is written 諸語 *shu yā*. The root is light or heavy.

The *Kuang ya* writes 薯蕷 *shu yā*, and with the latter name it is described in *P.*, XXVII, 33, as a climbing plant, both wild and cultivated, with edible roots, a purple stem, shining three-cornered leaves resembling those of the 牽牛 *k'ien nü* (*Pharbitis triloba*); flowers in spikes, followed by three-angled capsules. The seeds are produced by the side; they are of various sizes, greater and smaller, resembling the nodules of the 雷丸 *lei wan* (*Mylitta lapidescens*). [The Chinese authors mean, it seems, axillary bulbils, not seeds.] The plant is also called 山藥 *shan yao* (mountain drug) and 山芋 *shan yā* (mountain taro).

Shan yao is nowadays the common name in North China for the cultivated *yam*, *Dioscorea japonica*, Thbg. In other parts of China the same name is applied to *D. Batatas*, Dene., and other species. HENRY, *l.c.*, 412:—*Shan yao* in Hupei is *D. quinqueloba*, Thbg., also *D. japonica*. A good drawing of *Dioscorea* in *Ch.*, III, 25. [See also the *Kiu huang*, LI, 15, and LIX, 32.]

Amén. exot., 828, 薯蕷 *dsōjo*, vulgo *jumma imo*. Herba montana scandens, radice esculenta pingui, longa, carnosa,

incertae figure, quam ex loci conditione induit; folio graminis Parnassi membranaceo; specie floridis palmaribus; floribus Lychnidis pumilis hexapetalis, vix oscitantibus. THUNBERG, *Flora jap.*, 151, identifies this with *D. japonica*, as does also SIEBOLD, *Syn. plant. acon.*, 74. *So moku*, XX, 59, 60, same plant, wild and cultivated, under 山藥.

E., 54, family 薯, with five figures of *Dioscorea*.

S., I, 20, two bad figures. *C.*, 503, 1108. *A.*, XV, 177, *D. oppositifolia*, L.

H., 412, 黃薑, is *Curcuma longa*, L., in Canton. *Jap.*, 719.

薑黃. *C.*, 75. 牽牛 is *Jap.*, 1156, *Ipomoea heteracea*, L.

Jap., 806, *Dioscorea japonica*, Thbg., 野山藥 or 薯蕷.

" 807, " *quinqueloba*, Thbg., 山萆薢.

" 808, " *sativa*, L., 川萆薢.

380.—芝 *Chi*. This name appears among the articles of food enumerated in the *Li ki* [I, 461]. LEGGE translates it incorrectly by "lichens." Evidently mushrooms are meant. The Chinese commentators explain it by 木芝 (*Fungi* growing on trees). [Comp. *W.D.*, 53.]

See also the *Rh ya*, 41.

381.—薑 *Kiang* (Ginger).—This pleasant stomachic, nowadays employed in China and Japan, when fresh, to spice dishes, and used in a preserved state as a sweetmeat, was well known to the Chinese in early times.

In the *Li ki* [I, 461] it appears among the articles of food enumerated there. *Ibidem*, I, 135 :—TSENG TSI (one of the disciples of Confucius) said :—When one during his mourning rites falls ill, and has to eat meat and drink spirits, there must be added the strengthening flavours from vegetables and trees, meaning thereby *ginger* and *cinnamon* (桂 *kui*).

CONF. *Anal.* 97 :—Confucius was never without *ginger* when he ate.

E., 43, family 薑, with three figures. Two varieties of one, and another distinct species.

It has been found out at Kew that Chinese ginger is not *Zingiber*, but an *Alpinia*.

Jap., 119, *Alpinia Galangas*, Sw., 高良薑. *H.*, 37, *Liang chiang* = *Polygonatum sibiricum*, Red.

" 120, *Alpinia japonica*, Miq., 山薑.

" 2398, *Zingiber Mioga*, Rosc., 蘘荷.

" 2399, " *officinale*, Rosc., 薑.

S., X, 2. *Pr.*, 100. *Sm.*, 102, 127. *Comp.*, *Jap.*, 442, *Canna indica*, L., 曇華.

III.—Cultivated Cucurbitaceana Plants.

382.—瓜 *Kua* is a generic term for the fruits of cucurbitaceous plants, especially the cultivated ones. [*Comp. W.D.*, 466].

The *Shuo wen* explains 瓜 by 瓠, but evidently 瓠 *lo* is meant, which, by an ancient author quoted in *K.D.*, is said to denote fruits which ripen on the ground. The term refers especially to cucurbitaceous plants.

The early Chinese commentators on the Classics do not give any more exact definition of the character 瓜 occurring so frequently in the Classics. LEGGE translates it variously by melon, gourd, cucumber; BIOT and DOUGLAS by melon.

Shi king, 231 ["Life in Pin"] :—In the seventh month they eat the *melons*. 375 :—In the midst of the fields are the huts, and along the bounding divisions are *gourds*, and the fruit is sliced and pickled. 469 :—The *gourds* planted by HOU TSI yielded abundantly. 437 :—In long trains ever increasing grow the gourds and the *tie* [see farther on].

Li ki, I, 82:—He who pares a melon for the Son of Heaven should divide it into four parts and then into eight and cover them with a napkin of fine linen. I, 307 [*Yü ling*]: *Melons*. I 433:—The Son of Heaven planted gourds. I 461 ["Diet of the Ancient Chinese"]:
Cucumbers (瓜).

Calendar of the Hsia, 65:—Fifth month. Clothed are the melons. 91:—Ninth month. Sliced are the melons.

In the text of the *Chun li* the character 瓜 does not appear, it seems. The character 蔬 occurs there once [I, 383] and BIOT translates it by "fruits sans noyaux." Commentator B. (CHENG HŨAN) dit 瓜 melons, 夸 citronilles.

In *P.*, XXXIII, 1 article 甜瓜 *t'ien kua* (sweet *kua*), nowadays the common name for melons, also 甘瓜 *kan kua*, which has the same meaning. LI SHI-CHEN suggests that the *kua* mentioned in the above-quoted passage from the *Li ki* [I, 82] was a melon. He seems to be right. But as to the other quotations we are left in doubt whether the *kua* there mentioned were melons or what we call pumpkins, gourds, squashes, *i.e.* species of the genus *Cucurbita*. Nowadays the Chinese cultivate throughout the empire the *Cucurbita maxima* or Melon Pumpkin (the potiron of the French), the *C. Pepo* or Pumpkin gourd, and *C. moschata*. Of the *C. maxima* they have many varieties, varying considerably in size and shape of the fruit and in the colour of the skin. At Peking they are called 南瓜 *nan kua* and 番瓜 *fan kua*. They are generally of large size, but there is also a variety which is not larger than a peach. It is called 桃兒紅南瓜. *t'ao rh hung nan kua*, red peach pumpkin. *Cucurbita moschata* is 倭瓜 *wo kua*. The *Benincasa verifera*, 冬瓜 *tung kua*, is also much grown in China. The surface of its large fruit is covered with a waxy exudation,

All the cucurbitaceous plants now cultivated for food in China are probably indigenous to the country, with the exception of the cucumber and water melon, which, as their Chinese names indicate, were introduced from the West.¹⁶ LEGGE is therefore wrong in using the term eucumber in his translation of the *Li ki*.

E., 44, 45, family 瓜, with figures of:—

Benincasa cerifera, Savi., 冬瓜 also called 白瓜, 水芝 and 地芝. *C.*, 1390-1392. *Sm.*, 80. *Jap.*, 1223.

Cucurbita moschata, Duch., 南瓜, also called 陰瓜. *A.*, XV, 153. *P.*, XXVIII, 9. *Sm.*, 80. *Jap.*, 713.

Cucumis Melo, L., var. *Jap.*, 709, *C. comomum*, Thbg., 越瓜 also 稍瓜, 菜瓜. *Jap.*, 710, *C. flexuosus*, L., 羊角瓜. *Sm.*, 79. *C.*, 1324. *A.*, XV, 153, 甘(甜)瓜. *P.*, XXXIII, 1.

Cucumis sativus, L., 黃瓜 or 胡瓜. *S.*, III, 10. *Pr.* 16. *P.* XVIII, 40. Compare *Sm.*, 80. *Jap.*, 712.

Luffa cylindrica, Röm. [*Jap.*, 1333, *L. petola*, Ser.], 絲瓜 or 天絲瓜, 蠻瓜, 天羅, 布瓜. *S.*, X, 51. *C.*, 1190. *A.*, XV, 153. *Sm.*, 79.

Momordica Charantia, L., 苦瓜 or 錦荔枝, 癩葡萄. *C.*, 628. *A.*, XV, 153. *Sm.*, 91 and 151. *Pr.*, 80. *Jap.*, 1450.

Thladiantha dubia, Bge., 王瓜 or 土瓜, 野甜瓜, 老鴉瓜, etc., r. 152 and 386. [*Jap.*, 2224, r. 152.]

Cucumis Melo, L., 甜瓜 or 香瓜. *A.*, XV, 153.

Citrullus vulgaris, Schrad., 西瓜 or 寒瓜, 楊溪瓜. *A.*, XV, 153. *Sm.*, 65. *Jap.*, 607.

¹⁶ LI SHI-CHEN in *P.*, XXVIII, 14, states that the 胡瓜 *hu kua* or foreign *kua*, was brought to China from Western countries by the famous general CHANG K'EN [in the 2nd century B.C. See *Botan. sin.*, I, p. 24]. In the 4th century the name *hu kua* was changed into 黃瓜 *huang kua* (yellow *kua*) which is still the Chinese name for the cucumber in China and Japan. *Ch.*, IV, 43. *So moku*, XX, 38.

The water melon, 西瓜 *ai kua* (Western melon) was introduced into China in the 10th century from the country of the Ki tan (Eastern Mongolia and Manchuria). The Ki tan had previously brought this fruit from the country of the Hul ho (Uigurs). For further details see the H'w *tai shi*, quoted in *K.K.F.P.*, LXVII, 16, and *P.*, XXXIII, 6. *Ch.*, XXXI, 28. *So moku*, XX, 43.

383.—Twice in the text of the *Shi king* we find the characters 瓜 *kua* and 瓠 *tie* associated. Page 469 :—LEGGE translates *kua tie* by gourds ("the gourds planted by HOU TSI yielded abundantly.") Page 437, he renders the same term by "the gourds and the *tie*."

The *tie* is given in the *Rh ya* [58] as a synonym for 瓠 *cho*.

LEGGE explains the character *tie* (after CHU HI it seems) as meaning the gourd near the root, where it begins, very small as compared with the *kua* when it has grown and extended with a vast development of tendrils and leaves. I prefer to this obscure explanation, the definition given by K'UNG YING-TA, who states that in the Han dynasty the term *tie* was applied to the small *kua*, 小瓜, whilst by 瓜 the large kinds were denoted. But here again it is impossible to decide whether gourds or melons are meant. The Chinese cultivate small varieties of *Cucurbita maxima* and have also melons of a very small size.

384.—瓠 *hu*; 甕 *ku* (it means a pot, and is also written 瓠), 瓠 *p'ao* and 瓠 *p'iao*.

All these names in the Classics refer to *Lagenaria vulgaris*, L., the Calabash or Bottle gourd and its varieties. LEGGE translates them by bottle gourd, gourd, melon; BROT by "citrouille" (*pumpkin*) [*Chou li*, I, 383, note].

Li ki, I, 307 [*Yue ling*] :—Melons (瓜) and gourds (瓠).

Shi king, 420 :—Of the gourd (瓠) leaves some are taken and boiled. 271 :—In the south are trees with curved drooping branches and the sweet gourds (甘瓠) cling to them. CHU HI explains that there are sweet and bitter *hu*. 95 :—Her (a lady's) teeth were like melon-seeds 瓠犀. The second character here stands for 棲. See the *Rh ya* [21]. CHU HI explains :—The section of a melon showing the seeds regular and white.

Shi king, 231 ["Lito in Pin"] :—In the eighth month they cut down the bottle-gourd 瓠. CHU HI explains :—Same as 瓠.

LEGGE, *Shi king* [53] says :—The 瓠 *p'ao* in the *Shi king* is no doubt the bottle-gourd, called also *hu* and *hu lu*. When the fruit has become thoroughly hard and ripe, the shell, emptied of its contents, can be used as a bladder. We often see one or more tied to boat-children on the Chinese rivers, to keep them afloat, should they fall into the water.

Shi king, 53 :—The gourd (瓠) has still its bitter leaves and the crossing at the ford is deep. MAO explains :—The *p'ao* is the same as the 瓠 *hu*. Its leaves are bitter, cannot be eaten. CHU HI says :—The fruit was not yet hard enough to serve the purpose of a bladder in crossing a stream.

LU KI says :—The young leaves of the *p'ao* are eaten. The people prepare from them a soup of a very pleasant taste. The people from Honan to 揚州 Yang chon (Chekiang and Anhui) eat these leaves till the eighth month, when they become bitter, wherefore the *Shi* says the *p'ao* has its bitter leaves.

Shi king, 487 :—He poured out his spirits into calabashes (*p'ao*), i.e., Duke LIU, the ancestor of the Chou. CHENG HŪAN explains :—They used calabashes for cups to drink.

CONF. *Anal.*, 185 :—Am I a bitter gourd (瓠瓜)? How can I be hung up out of the way of being eaten?

Ibidem, 52 :—Admirable was the virtue of HUI, with a single bamboo-dish of rice and a single gourd-dish of drink 一瓢飲.

The *Ku kin chu* explains that *p'ao* is a kind of *hu* or bottle gourd. The term is also applied to a drinking vessel made of it.

The *P'i ya* [11th century] states that the above names referring to the bottle gourd are not synonyms but names

for distinct varieties. That with a long fruit tapering towards the upper end (the stalk) is 瓠 *hu*; it is sweet; that having a short fruit with a large belly is the 瓠 *p'ao*. The 壺 *hu* resembles the *p'ao* but is of a more globular shape.

At Peking the name 瓠子 *hu tsz'* is applied to a *Lagenaria* with a large club-shaped fruit from 2 to 3 feet long. The varieties of the bottle-gourd with smaller fruits, pear-shaped or oblong and narrowed in the middle (with a 腰 or waist as the Chinese say) are called 瓠蘆 *hu lu*.

See with respect to the bottle-gourd *P.*, XXVIII, 4, 6, 9. Compare also *Amoen. exot.*, 810, 811, *So moku*, XX, 46, 47, and *Phou zo*, LII, 17-23, where different varieties of the bottle-gourd, cultivated in Japan, are described and figured under the above-mentioned Chinese names.

Lagenaria vulgaris, L., 瓠 and 20 other names, v. *E.*, 47. *S.*, X, 33. *A.*, XV, 152. *Pr.*, 133. *Jap.*, 1224.

385.—果 蘆 *Kuo lo*. LEGGE calls it the heavenly gourd, and says that in the Japanese plates it is the musk melon.

Shi king, 236 :—The fruit of the heavenly gourd would be hanging about our eaves.

Comp. the *Rh ya* [23]. KUO P'ao calls this plant 天 瓜 *t'ien kua* or heavenly gourd.

K'UNG YING-TA says :—According to the *Rh ya*, it is the fruit of the 栝 樓 *kua lou*, but LI SUN says that the name is applied to the seeds. The *Pen ts'ao* says the *kuo lo* has leaves like the *kua* (gourd). They come out two and two, opposite to each other. It is a twining plant. The flowers appear in the sixth, the fruits in the seventh month. The fruit is like a gourd.

P., XVIIIa, 34 [*Kua lou*] :—The ancient authors quoted there describe it as a climbing plant with lobed leaves, pale yellow flowers resembling those of the *hu lu* (*Lagenaria*). Globular orange-coloured fruit of the size of a fist. The root

contains a white flour which is used in medicine, as is also the fruit. Figured *Ch.*, XXII, 27. *Kiu huang*, LIII, 18.

At Peking the *kua lou* is the *Trichosanthes Kirilowii*, Maxim., a cucurbitaceous plant spread over the whole of China. It is a beautiful plant, winding itself round the stems and branches of trees. Five-lobed leaves, fragrant white flowers beautifully fringed. In autumn the orange-coloured globular fruits of the size of a man's fist hang gracefully down from the branches on long slender stalks. The name *kua lou* may perhaps be also applied to other species of *Trichosanthes*.

So moku, XX, 35:—*栝樓* *Trichosanthes japonica*, Rgl. *P'hou zo*, XXVII, 12, same Chinese name, *Tr. japonica*, and 11 tubers and fruit of *Tr. multiloba*, Miq.

E., 151, family *栝樓*, has a figure of *Trichosanthes multiloba*, Miq. *S.*, II, 20. *P.*, XVIII, 34. *Jap.*, 2225, *Tr. japonica*, Regel.

E., 170, family *白藥子*, with figure of *Trichosanthes palmata*, Roxb.

Some more Chinese names are given in:—

Jap., 54, *Actinostemma japonicum*, Miq., *合子草*.

„ 1419, *Melothria Regelii*, Naud., *馬陵兒*.

„ 1056, *Gynostemma cissoides*, Bth. & H., *絞股藍*.

386.—*王瓜* *Wang kua*, the royal melon, as LEGGE translates.

Li ki, I, 268 [*Yue ling*]:—First month of summer. The royal melons grow. CHENG HUAN explains *wang kua* by *葦挈 pi kie*, and refers to the *Calendar of the Hia* [56], where we read:—In the 4th month *王荄莠* [DOUGLAS translates] reign the grass and the *yu* weed. I do not agree with DOUGLAS's translation. It seems to me that BIOT, who translates: “la grande courge *wang fou* fleurit,” is nearly correct. Evidently this sentence in the *Hia Calendar* 4th month, corresponds to the above-quoted in the *Yue ling*, first month of summer, where no doubt a cucurbitaceous

plant is spoken of, which CHENG HŪAN supposes to be the same as the 王薺 *wang fu* of the *Hia Calendar*. 莠 *Yu* is the name of a weed. But the Chinese commentator on the *Hia Calendar* is right in assuming that *yu* is a mistake for 莠 *sin* (to flourish).

Later commentators identify CHENG HŪAN's *pi kie* with the plant 菝葜 *pu kia* of the *Pen ts'ao*, which seems to be *Smilax China*, L. P., XVIII, 3. Root used in medicine. The drawing of the *pu kia* in Ch., XXII, 53, agrees well with the figure given by KEMPFER in *Amoen. exot.* [782] and with the above Chinese characters added. The plant represented there is *Smilax China*, L.

Other Chinese commentators refer, with respect to the *wang kua*, to the *Rh ya* [84 and 152]. The name seems to be applied to several plants.

The plant described in P., XVIIIa, 40, under the name 王瓜 *wang kua*, also called 赤雹 *chi pao*, and figured Ch., XXII, 30, is *Thladiantha dubia*, Bge., a beautiful cucurbitaceous climber of North China. It produces in summer a profusion of yellow flowers which are followed by small oblong red fruits. The name *chi pao*, usual at Peking, means "red hail stone." The tuberous root of the plant is mealy and used in medicine. I suspect this was the royal melon of the Classics.

In Japan, where, it seems, the genus *Thladiantha* is not represented, the Chinese name 王瓜 is applied to *Trichosanthes cucumeroides*, Ser. [See *So moku*, XX, 34].

E., 146, family 菝葜, with two figures of *Smilax*. 王瓜根 is a synonym. *Jap.*, 2096.

E., 133, family 遠志 [v. 194] *Polygala*. 王薺 is mentioned as a synonym.

387.—苦瓜 *K'u kua*, bitter gourd.

Shi king, 237 :—The bitter gourds hanging down from the chestnut tree.

K'ua kua is now the name applied in China as well as in Japan to *Momordica charantia*, L. The fruit of this cucurbitaceous plant is bitter and covered with little wart-like protuberances, wherefore the Chinese call it also 瘰瓜 *lei kua* (leprosy gourd). *P.*, XXVIII, 21, *Ch.*, V, 6, *So moku*, XX, 36.

Li SHI-CHEN, however, does not mean to identify the *k'ua kua* of our days with that of the *Shi king*, proving that *Momordica* is not indigenous to China but was introduced from the south.

IV.—Textile Plants.

388.—The character 麻 *ma*, which nowadays is a generic term for plants yielding textile fibres, was in ancient times applied exclusively to the common hemp plant, *Cannabis sativa*, L. As is well-known, its flowers are of separate sexes on different plants. The male plant was called 苧 *si* or *i*. In the *Rh ya* [104] this character is given as a synonym for 麻. The female or seed-bearing plant was 苧 *tsu*. The *Rh ya* [140] gives 麻 *fen* as a name for hemp-seed.

The *Liu shi* [Song dynasty] relates a tradition according to which the Emperor SHEN XUNG [28th century B.C.] first taught the people to cultivate the *ma*, or hemp, and the mulberry tree, for making hempen and silken cloth (布 *pu* and 帛 *po*).

The *Rh ya i* [12th century] says the *ma* is used for food [the seed] as well as for making cloth (布) from its fibres. The plant which bears seed is called *tsu*, that which has no seed is *si*.

As hemp-seed was an article of food, the hemp in ancient times was reckoned as one of the five, or nine, kinds of grain [*r. supra*, 335].

Li ki, I, 284 [*Yue ling*]:—First month of autumn. The Son of Heaven eats hemp-seed with dog's flesh. Same statement [289, 291] for the second and third months of autumn. The text has only *ma* (hemp). LEGGE translates hemp-seed on the authority of the Chinese commentators.

Ibidem I, 88. ["Rules for the Period of Mourning"] :—A man of seventy will only wear the unhemmed dress of sackcloth (*ma*). I, 143 :—At the mourning rites for HUI TSZ', TZE YÜ went to condole, wearing for him a robe of sackcloth (麻裘) and a headband made of the product of the male [hemp] plant (牡麻絰). II, 49, 388 :—Mourning attire, hempen cloth, hempen dress (*ma*). I, 479 :—A girl of the age of ten was taught to learn women's work, to handle the hempen fibres (麻枲), to deal with the cocoon, etc. I, 369 :—The ancient kings knew not yet the use of flax (*ma*)¹⁷ and silk (絲), but clothed themselves with feathers and skins. The later sages then arose . . . they dealt with the flax and silk so as to form linen and silken fabrics.

Chou li, I, 163 :—Le directeur du chanvre (典枲) est préposé au chanvre (麻) et aux diverses plantes (草) pour faire les toiles ordinaires (布), les toiles à 15 largeurs de fils (總), les toiles en filasse (縷) et les toiles claires (紵). KIA KUNO-YEN explains that all these fabrics were made of *ma* or hemp, with the exception of the 紵 *chu*, which was made of 草. [Other textile plants, *see infra*.]

Shi king, 122 :—On the mound where is the hemp (*ma*). 156 :—How do you proceed in planting hemp (*ma*)? The

¹⁷ Flax, *Linum sativum*, L., was unknown to the ancient Chinese. It is nowadays cultivated in the mountains of North China (probably also in other parts of the empire) and in Southern Mongolia, but only for the oil of the seeds, not for its fibres. The Chinese call it *ku ma* (foreign hemp). *P.* does not speak of it. Its introduction must be of more recent date. In *Ch.* II, 31, is a good drawing of the plant under the name 山西胡麻 *Shan si ku ma* (foreign hemp of Shansi).

acres must be dressed lengthwise and crosswise. 205 :—She leaves twisting her hemp (*ma*). 208 :—The moat at the eastern gate is fit to steep hemp (*ma*) in. 221 :—A robe of hemp (*ma*) like snow. 232 [“Life in Pin”] :—The harvest is collected, hemp (*ma*) and other grains and vegetables. 469 :—The hemp (*ma*) planted by Hou Tsi [*r. supra*, 313] grew strong and close.

MEXCIUS, 132 :—Hemp (*ma*).

CONF. *Anal.*, 81 :—The Master said, the linen cap (麻冕 hempen cap) is that prescribed by the rules of ceremony.

Chou li, I, 27 :—Les femmes légitimes (femmes du premier rang) transforment par leur travail la soie (絲) et le chanvre (桑). II, 269 :—Le commerce de la province de 豫州 Yu tcheon (Honan) consiste en bois de bambou, en vernis, en soie, en chanvre (桑).

Shu king, 102, 117 :—[Tribute of Yü.] Hemp (桑) mentioned as a product of the provinces of 豫州 Yu chon and 青州 Ts'ing chou (Honan, Anhui).

Li ki, II, 384 :—[“Mourning Rites”] :—The head band worn with the frayed sackcloth, for a father when mourning, must be made of the fibres of the female [hemp] plant (女麻). LEUCK states (on the authority of the Chinese commentators) :—The fibres of the male and the female hemp plant are both dark coloured, those of the female plant being the darker. The cloth woven of them was also of a coarser texture.

Shi king, 231 [“Life in Pin”] :—In the ninth month they gather the hemp-seed (麻).

The character 實 *jen* has several meanings. In the *Rh yu* [298] it means exuberance of fruit, and in the same sense it occurs in the *Shi king*, 109. But in the *Chou li* [I, 107] the character denotes hemp-seed :—Les paniers de la cérémonie du matin sont remplis de blé mûr (穀), de la graine de chanvre (*jen*), de riz, de millet, etc. CHENG SÜ-SUNG

explains *fen* by hemp-seed, as in the *Rh ya* [104] the character 𦵏 *fen* is explained. In another place in the *Chou li* [I, 365] *fen* has the meaning of "extrait de chanvre," as BIOT translates, used as manure.

In the *Li ki* the *fen* is noticed as an article of food. The Chinese commentators explain it by 大麻子 hemp-seed. I cannot understand why LEGGE [*l.c.*, I, 451] translates *fen* by spinach. He confounded it perhaps with 莧, which is *Amarantus Blitum*.

LEGGE defines the character 布 *pu*, frequently met with in the Classics, by "cloth," without saying of what material; BIOT by "toile ordinaire." See the above-quoted passage from the *Chou li* [I, 163], from which it would appear that *pu* in ancient times denoted only hempen fabrics. Besides this, the *Shuo wen* explains *pu* by 枲織 or (cloth) woven of hemp. Nowadays *pu* is a general term for cotton, hempen and other textile fabrics.¹⁸

P., XXII, 11, calls the hemp plant 大麻 *ta ma*, the great hemp, a name given to it in the *Shen mung pen ts'ao*. The *Rh ya i* [12th century] terms it 淺麻 *han ma*, or Chinese hemp, in opposition to the 胡麻 *hu ma*, or foreign hemp, the *Sesamum orientale*, a plant introduced from Western Asia in the 2nd century B.C. A good drawing of *Cannabis sativa*, under *ta ma* is given in *Ch.*, I, 3. But at Peking the popular name of the hemp plant, which is also found there in a wild state, is 小麻 *siao ma* small hemp, whilst the name of *ta ma* is incorrectly applied by the people

¹⁸ Cotton, nowadays the most important among the textile materials produced in China, was unknown to the ancient Chinese. It was only about A.D. 1000 that this useful plant became fully introduced into the Southern Provinces of China, from Cochin-China. It is mentioned several centuries earlier in the Chinese annals as a product of foreign countries (Southern Asia and Central Asia). See the late W. F. MAYERS' interesting paper on the subject in *Notes and Queries on China and Japan*, 1838, p. 72.

to the *Ricinus* plant, the book name of which is 蓖麻 *pí ma*. Hemp in Northern China is also called 線麻 *siên ma*. The first character means cord, lines.

Amoen. exot. [897] 麻 *ba* and *ma*, vulgo *asa*, *Cannabis sativa*. *So moku* [XX, 52] 大麻 *Cannabis sativa*. *SIEBOLD, Syn. plant. æcon. jap.* [176] 麻 *asa*, *Cannabis sativa*, var. *indica*. *Liber pro lintea ac funibus, semina pro cibo usitata.*

E., 39, family 麻, contains besides the 大麻 [*r.* 140]:—

亞麻, the figure bad. *Jap.*, 1293, *Linum perenne*, L., var. *sibirica*.

蓖麻, *Ricinus*. 苧麻 *Abutilon Arvense* [*r.* 389]. *Jap.*, 8.

苧麻, *Boehmeria nivea*, Hkr. & A. [*r.* 391]. *Jap.*, 358.

苧麻, with bad figure. *Jap.*, 2262, *Urtica Thunbergiana*, S. & Z.

Jap., 671, *Corchoropsis crenata*, S. & Z., 田麻.

" 672, *Corchorus capsularis*, L., 黃麻.

" 2074, *Sesamum indicum*, L., 胡麻.

389.—苧 *K'iang* is the name of a textile plant mentioned in the *Li ki*, II, 150 ["Mourning Attires"] :—A girdle made of the *k'iang* hemp.

Chou li, I, 379 :—The text speaks of textile plants cultivated in damp ground. *CHENG SZ-SUNG* remarks that the plants *k'iang* [*Biot* writes *king*] and *cha* [*tchou*, see 391] are meant.

The *Rh ya i* [12th century] says that this is the same as 苧麻 *k'iang ma*. Another name is 縑 *k'ing*, of which the *Shuo wen* states that it is a kind of hemp.

These names are now applied to the *Abutilon Arvense*, Gertn., (*Sida tiliaefolia*, Fish.) a common plant in Northern China, wild and cultivated. Cord is made of its fibres. It has broad leaves, a tall stalk, yellow flowers.

HENRY [*l.c.*, 267] 青麻 *ts'ing ma* or 縑麻 or 苧麻 *Abutilon Arvense*. The hemp exported from Sz'ch'uan is from this plant.

See *P.*, XV, 53, under the above names. Good drawing of the plant *Ch.*, XIV, 14. *Kiu huang*, LII, 4, rude figure.

So moku [XII, 62] 苧麻 *Abutilon Arvense*.

390.—葛 *Ko*. This name of a textile plant is frequently mentioned in the Classics. LEGGE is of opinion [*Shi king*, 6] that it is a general name for the *Dolichos* tribe, and in the *Shi king*, where this character occurs about twenty times, he identifies it with the *Dolichos tuberosus*, of whose fibres a kind of cloth is made. Sometimes he terms it also grass-cloth.

Li ki, I, 169 :—At the interment they used the cap of plain white silk and the head-band of *Dolichos* fibre (*ko*). I, 432 :—Sashes of *Dolichos* cloth (葛帶). II, 49, 139 ["Mourning Attire"] :—Girdle and cap of *Dolichos* cloth (*ko*). II, 388 :—When after the burial the hempen dress is put away, grass-cloth (*ko*) is worn : 389, grass-cloth (*ko*) bands.

Shi king, 6 :—How the *Dolichos* (*ko*) spreads itself out, extending to the middle of the valley. Its leaves were luxuriant and dense. I cut it and I boiled it and made both fine cloth (緇 *ch'i*) and coarse (絺 *k'i*), which I will wear. 186 :—The *Dolichos* (*ko*) grows covering the jujube tree. 156, 163 :—*Dolichos* shoes (葛屨) mentioned. LEGGE (following the Chinese commentator), Shoes thinly woven of the *Dolichos* fibre may be used to walk on the hoar frost. CHENG HUAN [*Chou li*, I, 168] :—En été on porte des souliers tissés en plante *ko*, en hiver des souliers de peau.

Chou li, I, 379 :—Le préposé aux plantes textiles *ko* (葛) est chargé de recueillir à diverses époques les matières qui servent à faire des toiles fines (緇) et grossières (絺) et qui sont fournies par les cultivateurs des montagnes. En général il est chargé de percevoir la taxe de la plante rampante *ko*.

The terms 絺 *ch'i* and 縵 *k'i*, frequently met with in the Classics, denote, as the ancient commentators (MAO in the *Shi king*, K'ING AN-KUO in the *Shu king*) explain, the *ch'i* a fine, the *k'i* a coarse cloth made of the fibres of the *ko* plant. LEGGE translates sometimes fine and coarse linen, sometimes grass-cloth.

Shi king, 6 :—See quotation above.

Shu king, 102, 117 [Tribute of Yĕ] :—The *ch'i* mentioned as an article of tribute of the provinces of 青州 Tsing chou and 豫州 Yü chou (Anhui, Houan), the *k'i* only for Yü chou. LEGGE translates fine grass-cloth, finer and coarser hempen-cloth.

Chou li, I, 379 :—Toiles fines et grossières. See quotation above.

Li ki, I, 82 :—Napkins of fine and coarse linen (*ch'i*, *k'i*). I 153 :—HSIEN TSZ' said :—To have the mourning robe of coarse *Dolichos* cloth (*k'i*) and the lower garment of fine linen (*ch'i*) was not the way of antiquity. I, 270 [*Yü ling*] :—First month of summer. The Son of Heaven begins to wear thin *Dolichos* cloth (*ch'i*).

CONF. *Anal.*, 94 :—The superior man (Confucius) in warm weather had a single garment either of coarse or fine texture (*k'i*, *ch'i*).

The *ko* [the name is still in use] is a climbing plant of the leguminous order, very common all over China and Japan. It grows wild in the mountains and is also much cultivated for the textile fibres of its stem as well as for its tuberos and farinaceous roots, which furnish an article of food. The fabrics made of the *ko* fibres are still much prized in China. The botanical name of this plant is *Pachyrhizus Thunbergianus*, S. & Z., also *Pueraria Thunbergiana*, Benth. THUNBERG described it first as *Dolichos hirsutus*.

The *ko* plant is described *P.*, XVIIIa, 12. Good drawing *Ch.*, XXII, 33. SIEGOLD *Syn. plant. aron jap.*, 294.

Dolichos hirsutus, kudau 葛 or 葛粉 (the second character = flour). *Planta sponte crescens, linteum, anylum, funes, tabulumque equorum profert.*

So moku, XIII, 25, 26, 葛 *Pueraria Thunbergiana*.

E., 111, family 葛, with figure of *Pueraria Thunbergiana*, Bth. Figure is copy of *S.*, II, 18, where two are seen. The other may be of *Pachyrhizus angulatus*, Rich.

C., 599, 600, 601. *A.*, XV, 146. *Sm.*, 88. *H.*, 176.

391.—紵 *Chu*. LEGGE [*Shi king*, 209] says it is described as a species of hemp, a perennial, and not raised every year from seed. In the Japanese plates it is evidently the *Boehmeria* or nettle from which grass-cloth is made. But as the radical of the above character indicates, this is not the name of the plant itself but of the fabric woven of its fibres. The *Shuo wen* refers it erroneously to the 𦵏 (which, as we have seen, is *Abutilon*) and says that the fine cloth made of it is called 紵 *ts'uan*, the coarser 紵 *chu*. Later authors take these fabrics to be derived from the 苧 *chu* plant, which is *Boehmeria nivea*, Hook & Arn. This latter name *chu* for the grass-cloth plant appears in the *Pie lu* [5th century] but it was much earlier in use. [V. *infra*, 458].

Shi king, 208 :—The moat at the east gate is fit to steep the *Boehmeria* (紵).

LU KI :—The 紵 *chu* is a kind of hemp (*ma*). Numerous stems come out from the same root, which is perennial, and in spring young plants shoot forth again without being raised from seed. In 荊州 King chon (Hukuang) and 揚州 Yang chon (Chekiang, Anhui) there are three crops in one year. Now the government raises this plant in gardens. An iron or bamboo knife is used to strip off the bark. After the thick outer bark has been scraped off, they get to the soft but tough fibres of the inner bark, which are boiled and then twisted and manufactured into cloth (紵). This fabric is used for garments all over southern China 南越 (Nan yüe).

Shu king 117 [Tribute of Yü]:—The *chu* mentioned as a product of 豫州 Yü chon (Honan). LEGGE translates incorrectly coarser hempen cloth.

In the text of the *Chou li* the character *chu* occurs once [I, 163]. See the quotation above under 388. BIOT translates "toiles claires." This fabric is twice mentioned by the Chinese commentators on the *Chou li* [I, 32] where BIOT translates "étoffes fines de soie," and [I, 379] *tsau*.

P., XV, 51, *Ch'a ma*, *Boehmeria nivea*. Figured in the *Kin huan*, I, 1, 7, *Ch.*, XIV, 1, 5.

Amoræ exot., 891:—苧 *Tsjo*, vulgo *sjiro no*, *Cannabis alba*, aliis *karauusi*, *karao* et *mao*. *Urtica vulgaris* major, vere florens, caule filis validis ad texturas expetitis instructo; semine acerrimo, ex quo oleum canstium exprimitur. *So moku*, XX, 4:—苧麻 *Boehmeria nivea*. STEB., *Sgn. plant. aron.*, 171:—*Urtica nivea*, *mao*, 苧麻. Cortex pro funibus, liber pro linteo subtili.

V. *supra*, 388.

V.—*Tinctorial Plants.*

392.—The character 藍 *lan* is applied as a generic term to plants furnishing a blue dye. In the *Huai nan tsz*:⁴ [2nd century B.C.] we read 青出於藍, the blue colour is yielded by the *lan* (plant). The *Shuo wen* defines *lan* by 染青草 a plant (or plants) which dyes a blue colour. But nowadays the principal meaning of *lan* is "blue, a blue colour."

We meet several times with the term *lan* in the Chinese Classics. LEGGE translates it by Indigo plant.

Shi king, 412:—All the morning I gather the Indigo plant.

Li ki, I, 274 [*Yue ling*]:—Second month of summer. The people are forbidden to cut down the Indigo plant (*lan*) to use it for dyeing.

Chou li, I, 380:—Le préposé aux plantes de teinture, 掌染草, est chargé de recueillir au printemps et en automne les espèces de plantes qui servent à la teinture. The text of the *Chou li* does not give the names of these plants, but the early commentators supply them. In BIOT's translation [*l. c.*, note] we have to read *lan* for *lien*.

Hia Calendar, 68:—Fifth month 啟灌藍華. DOUGLAS translates:—Begin to become luxuriant the *Ruellia* and the *Clematis*. BIOT has:—Séparez (coupez) la plante *lan liao* (l'Indigo) qui est en pleine croissance.

BIOT is correct in taking *lan liao* to be one name. It is the *Polygonum tinctorium* [see farther on].

See also the *Rh ya*, 178, *ma lan*.

The Chinese dyeing drug which in commerce goes under the name of *Indigo* [Reports on Trade of the Chinese Maritime Customs] is yielded by distinct plants in different parts of China. The blue dye-stuff properly called Indigo is prepared from the leaves of *Indigofera tinctoria*, L., a leguminous shrub cultivated from immemorial times in India and the warmer parts of Asia. *I. Anil*, L., a larger plant, also generally cultivated in warm countries for the production of indigo, is supposed to be of American origin. The late Dr. HANCE wrote me that this species is frequently seen in Southern China. LOUREIRO [*Flora cochina.*, 560] mentions *I. tinctoria* as cultivated in South China under the names *lan tsao*, *ta cim* (*ts'ing*). As the true Indigo plant is a tropical species, it is never met with in the northern part of China. I am not aware how far to the north its cultivation in China extends.

Polygonum tinctorium mentioned by LOUREIRO [*l. c.*, 297] as a plant yielding Indigo at Canton, is grown also in the northern provinces, especially near Peking, where it is called *lan*. DEBEAUX [*Flore de Cheunghai*, 52] found it cultivated near Shanghai. This plant is a native of China and is grown,

it seems, all over the empire. It is also cultivated in Japan, but, as MIQUEL (quoted by SIEBOLD) states, it was introduced from China.

A third Chinese Indigo plant is the *Isatis indigofera* of FORTUNE, a cruciferous plant, first observed by that meritorious traveller in the vicinity of Shanghai, where he found it cultivated as a tinctorial plant under the name of *tien ching*. It seems to me that F. has reversed the name, and that 靛 藍 *ts'ing tien* [*r. infra*] is meant. According to Mr. HEMSLEY [*Index Floræ sin.*, 49] FORTUNE's plant is only a variety of our common European Dyer's Woad, *Isatis tinctoria*, L.

Lastly, FORTUNE describes an acanthaceous plant extensively cultivated in the Chekiang Province for producing indigo. This is the *Strobilanthes flaccidifolius*, Nees, grown also near Canton and in Assam. Mr. BULLOCK [letter 1881] saw it near Pakhoi. This is FORTUNE's *Ruellia indigotica*.

P., XVI, 74, *lan*. An author of the 7th century quoted, who states that there are three kinds of *lan* in China from which the 靛 澱 *lan tien* or Indigo is extracted (the second character is more generally written 靛 *tien*) one is the 木 藍 *mu lan* or tree *lan*, the second the 菘 藍 *sung lan* or cabbage *lan*, the third the 蓼 藍 *liao lan* or *Polygonum lan* [comp. above 366].

The *mu lan*, said in *P.* to be cultivated in the southern provinces, is, it seems, *Indigofera*. The *Phou zo*, XIX, 17, figures under 木 藍 or 靛 澱 *Indigofera tinctoria*. LI SHI-CHEN describes the *mu lan* as a leguminous plant with leaves resembling those of the *Saphora*; pale red flowers, succeeded by pods one inch and more long.

The *sung lan* or cabbage *lan* is *Isatis*. It has the same Chinese name in Japan. *So moku*, XII, 45, 菘 藍 or 江南大靛 (the great blue of the Chinese province Kiangnan) is, according to FRANCHET, *Isatis japonica*, Miq.

The *lian lan* of ancient authors is *Polygonum tinctorium*, LOUR. It is figured under *lan* in *Ch.*, XI, 12, recto. *So moku*, VII, 77, and *Phon zo*, XIX, 16, 藍 *Polygonum tinctorium*, japonice *ai*.

We read in THUNBERG's *Flora japonica* [166] *Polygonum chinense*, L., japonice *ai*, and *itadori*. *Planta est caeruleo-tinctoria in-star Indigo . . . P. barbatum et ariculare eundem in finem*:—and in SIEBOLD's *Syn. plant. acon. jap.* [106] *Polygonum chinense*, 藍, japonice *ai*. *Herba tinctoria maxime in Japonia usitata*. Neither THUNBERG nor SIEBOLD mentions *P. tinctorium*, which, however, as we know from various sources, is much cultivated in Japan for its indigo. I therefore suspect that the *P. chinense* of THUNBERG and SIEBOLD may be *P. tinctorium*.

I am not prepared to say what tinctorial plant with serrate leaves is figured under *lan* in *Ch.*, XI, 12, verso.

I have no doubt that the *lan* of the Classics was *Polygonum tinctorium*, which nowadays seems to be the most important of the Chinese Indigo plants. The *Hia Calendar* by *liao lan* doubtless means this plant. *Indigofera* is out of the question, for it is a tropical or subtropical plant, not indigenous to China. *P.*, XVI, 76, quotes an author of the 10th century who states that the 青黛, *ts'ing tai*, which is the true Indigo, was introduced into China from Persia.

E., 105 [v. *supra*, 178]. *S.*, I, 34.

Jap., 1170, *Isatis japonica*, Miq., 藤藍.

393.—茹蕒 *ju la* is the name of a plant mentioned in the *Shi king*. LÉGGE translates correctly madder plant.

Shi king, 142:—Near the level ground at the east gate is the madder plant on the bank. 146:—Madder-dyed coiffure. 382:—Character 緜 *mei*, which means madder-dyed. According to the *Shuo wen* this is also a name for the madder plant. In the *Shi king*, by this term madder-dyed knee-covers are meant,

The *ju lā* is noticed in the *Rh ya* [22], where also other names are given.

LU KI :—The *ju lā* [other names quoted from the *Rh ya*] is also called 地血 *tì hūe* (earth's blood). The people in 齊 Ts'i (Northern Shantung) call it 茜 *ts'ien*, in 徐州 Sū chou (Northern Kiangsu) it is 牛蔓 *nū mang* (ox creeper). Now the people cultivate it in gardens.

The plant *ts'ien*, with which the ancient commentators identify the *ju lā* of the *Shi king*, is the *Rubia cordifolia*, L., a common plant in the northern and central provinces of China. The root is used as a red dye in China and Japan like the root of our madder plant, *R. tinctorum*, L.

P., XVIIIb, 19, *ts'ien*. Good drawing of the plant in *Ch.*, XXII, 20.

Anacn. exot., 912 :—茜 *Sen*, vulgo *akanni*. Herba spithmalis, vel pedalis, ramosa, procumbens, radice fibrosa, densa, foliis Nummulariæ, infectoribus pro colore serviens.

The same Chinese and Japanese name (*akane*) in SIEBOLD'S *Syn. plant. japon.*, 332, is applied to *Queria trichotoma*, THUNBERG. Adhibetur Rubiæ nostratibus adinstar tinctoria. But *Queria trichotoma* of THBG., is, according to MAXIMOWICZ, *Wickstroemia japonica*, Miq. I suspect SIEBOLD was mistaken, all the more as the *So moku* II, 64, and the *Phon zo*, XXIX, 18, both figure under 茜草, japonice *akane*, *Rubia cordifolia*.

V. *supra*, 22. *Jap.*, 1930, *Rubia cordif.*, var. *mungista*, Miq.,

茜草, 金線草.

394.—As has already been noticed [392] there is a passage in the *Chou li* stating that the superintendent of the plants used for dyeing is obliged to gather these plants in spring and in autumn.

CHENG HŪAN says that the following plants are meant :—

1.—The 茅鬼 *mao shou* which is mentioned in the *Rh ya* [22]. The same as *ju lā* or *Rubia* already spoken of.

2.—The 藥蘆 *t'o lu* (BIOT reads *ki lie*). *K.D.* writes 索蘆 *so lu*. These names are not found in *P.*

3.—The 豕首 *shì shou* (pigs' head). This is mentioned in the *Rh ya* [35] where perhaps *Carpesium abrotanoides* is intended. But that is not a tinctorial plant.

4.—紫莢 *tsz' lie*. [Comp. the *Rh ya*, 142]. This is *Lithospermum erythrorhizon*, S. & Z.

To these four names other commentators add two more, viz :—

5.—藍 *lan* (BIOT writes *lien*), Indigo plants [*c. supra*, 392].

6.—The 皂象斗 *tsao siang tou*, used for dyeing a black colour. These are cupules of the acorns of oaks [*c. infra*, 534].

VI.—Water Plants.

395.—The beautiful Lotus plant, the *Nelumbium speciosum*, WILLD., is spoken of in the *Shi king*. Compare regarding its ancient names and names for various parts of the plant, the *Rh ya*, 99, 100, 191.

Shi king, 137 :—In the marshes is the Lotus flower 荷華 *ho hua*. 213 :—By the shores of that marsh there are rushes and Lotus flowers (*ho*). In the same ode, farther on, we have Lotus flowers 菡萏 *han tan* [LEGGE explains unopened flowers of the Lotus].

LU KI gives the following account of the plant [for the Chinese characters see above, 99, 100, *Rh ya*] :—

The *ho* is also called *fu kû*. The former name is usual in Kiangtung. Its stem is called *kia*, the leaves *kia*, the part of the plant below the leaves is 白藕 *pai jo*, the unopened flower *han tan*, the expanded flower *fu kû*. Its fruit is *lien*. The green skin of the seed receptacle is 裏 *li*. The white

seed is *ti*. In the centre of the seed there is a small green hook (the plumule) which is called *i* and is very bitter, whence the proverb "bitter as a plumule of the Lotus-seed." In the fifth month the seeds begin to form. The unripe tender seeds are eaten. In autumn the *lien* or receptacle is getting black, and then the ripe seeds are ground into meal, which is used for food like millet. It is nourishing, strengthens the body. It is also eaten boiled into gruel. It is especially useful to the people of 幽州 Yu chou (Northern Chili), 揚州 Yang chou (Auhui, Chekiang), and 豫州 Yü chou (Honan), in time of dearth. The root stock is called *ou*. In Yü chou the people call it 光旁 *kuang p'ang*; it is shining like an ox-horn.

Li sao, 19:—J'ai séché des feuilles du nénuphar (荷) pour orner mes vêtements supérieurs, j'ai amassé des fleurs d'Althæa (芙蓉) pour orner mes vêtements inférieurs. I may observe that *fu yang* in ancient times was not Althæa but another name for the Lotus flower [*c. supra*, 99, 101].

Nelumbium speciosum is extensively cultivated throughout the Chinese Empire. At Peking the people eat the fresh seeds and cook the arrowroot obtained from the root stock into a jelly which is considered very wholesome.

Of the ancient terms applied to the plant and parts of it, only three are still in use. The flowers are called 蓮花 *lien hua*, the leaves 荷葉 *ho ye*, the root stock is 藕 *ou*, the flour obtained from it 藕粉 *ou fen*.

P. XXXIII, 16, *lien ou*. The plant is figured under the same name in Ch. XXXII, 9, and in the *Kiu huang*, LVIII, 22.

Amen. exot., 880, 蓮 *ren*. *Nymphaea indica*, sive *Faba aegyptiaca* Prosp. Alp. *Planta pagani sacra* . . . *Radix prælonga*, in transversum extensa, brachii crassitie, ex longis intervallis geniculata. SIEBOLD, *Syn plant. æcon. jap.*, 96, *Nelumbium speciosum*, 蓮. *Flos idolis oblatas*. *Radices crebrum obsonium*. *Semina edulia*.—*So moka*, X, 9, 10.

V. supra, 99. *Jap.*, 1490, *N. speciosum*, Willd., 蓮.

Jap., 1502, *Nymphaea tetragona*, Georg., 睡蓮, 午蓮.

„ 1501, *Nuphar japonicum*, DC., 萍蓬草. [Comp. *supra*, 113.]

396.—Another interesting and conspicuous plant of the order of Water-lilies, the *Euryale ferox*, Salisb., has, like the Lotus, been cultivated throughout China from remote antiquity. Its farinaceous seeds are used as food by the natives. The whole plant is covered with prickles; large leaves with prominent spiny veins. The popular Chinese name of the plant is 雞頭 *ki t'ou* (cock's head). This name is very fitting; the long, thin, persistent, closely cohering segments of the calyx enclosing the ovary, indeed resemble a cock's head. The classical name of the plant is 芡 *k'ien*. It appears only once in the *Chou li* [I, 108]:—Offerings. Les paniers supplémentaires sont remplis avec des châtaignes d'eau, des fruits de la plante *kien*, etc. CHENG SZ'-NUNG comments *ki t'ou* (cock's head).

The *k'ien* is not mentioned in the *Rh ya*, but is noticed in the *Fang yen* [1st century B.C.] The common Chinese names are given there as *k'ien* and *ki t'ou*. In 北燕 *Pei yen* (Northern Chili) it is also called 蓂 or 蓂. These characters are not found in *K.D.*, but are probably the same as 蓂 *wei* or *yi* given in the *Kuang ya* as a synonym for *k'ien*.

P., XXXIII, 27, *k'ien*. Figured in the *Kiu huang*, LVIII, 23, and in *Ch.*, XXXII, 10, (tolerably well represented).

Euryale ferox is also cultivated in Japan. *Anaen. ecot.*, 900, 芡 *ken* vulgo *midsubaki*. *Nymphaea folio Populaginis*, longis villis hirsuto; fructu surrecto magno turbinato, instar strobili squamato et villosa. *Phon zo*, LXXVI, 5, 芡實 (the second character means fruit). *Euryale ferox*.—[See also HOFFM. & SCH., 236.]

E., 99, family 芡, with good figure of *Euryale* and 11 names.

S., XI, 23. *Sm.*, 95. *Jap.*, 929.

397.—A third water-plant cultivated for its edible seeds, and which grows plentifully in the lakes and rivers of China—the water-caltrop, *Trapa*—is mentioned in the Ritual Classics under the name of 菱 *ling*.

Chou li, I, 108 ["Offerings"] :—Les paniers supplémentaires sont remplis avec des châtaignes d'eau (*ling*. CHENG SZ'-NUNG explains it by 菱 *k'i*) des fruits de la plante *kien*, etc.

Li ki, I, 461 ["Diet of the Ancient Chinese"] :—*Ling* mentioned among the fruits eaten. [See *infra*, 484, note.] CHENG HÜAN comments *ling k'i*.

The plant is mentioned in the *Rh ya* [124].

Li sao, 19 :—J'ai séché des feuilles de la châtaigne d'eau (菱) et du nœnphar pour orner mes vêtements supérieurs.

The *Shuo wen* explains *ling* by *k'i* and says that the latter character is the same as 菱 (pronounced also *to*).

The *Wu ling ki*, quoted in the *Yu yang tsu tsu* [9th century] says that the fruit with three horns is called *k'i*, that with two is *ling*.

The *Ts'i min yao shu* [5th century] calls it 菱秋 *ling ts'in*. At Peking the common name for the water-caltrop is now 菱角 *ling k'ue*, the second character meaning horn, in allusion to the horns at the top of the fruit.

P., XXXIII, 26, 菱實 *k'i shi* (*k'i* fruit) also *ling*, *ling k'ue*. SE SING [11th century] distinguishes two kinds of *ling*, with two and with four horns. LI SHI-CHEN gives a good description of the plant.

Drawings in the *Kiu huang* [LVIII, 10] under *ling k'ue* (plant recognizable), and in *Ch.*, XXXII, 19, good figure.

The water-caltrop cultivated at Peking is the *Trapa bispinosa*, Roxb., which is found also in Kashmir. LOUREIRO [*Flora cochin.*, 85] mentions the *Trapa chinensis* cultivated at Canton. LINNÆUS described a water-caltrop received from Canton as *T. bicornis*. HENRY [*l.c.*, 243, 244] :—In

Ichang ling kûe is *Tr. bispinosa*. In the *Index Floræ sin.* [p. 311] all the Chinese species of *Trapa* are referred as varieties to *Tr. natans*, L.

Amœn. exot., 817, 菱 *rijuu*, vulgo *ris*. *Tribulus aquaticus*.
So moku, II, 53, 菱 japonice *hissi*. *Trapa bispinosa*, Roxb.

V. supra, 124. *Jap.*, 2218.

398.—A water-plant termed 茼 *mao* in the *Shi king* (the character is also written 茼 and 茼) is called mallow or water-mallow by LEGGE. He says it is probably another name for one of the duck-weeds: according to WILLIAMS an aquatic vegetable like mallow.

Shi king, 616 :—Pleasant is the semi-circular water (surrounding the college) and we will gather the *k'in* [r. 370] the *tsao* [r. 401] and the mallows (*mao*) about. MAO explains *mao* by 鳬葵 *fu k'ui* (duck-mallow).

Chou li, I, 109 ["Offerings"] :—Les terrines de la cérémonie du matin sont remplies avec de l'ail mariné (other vegetables and meats enumerated) . . . et avec des marinades de grande moutarde [r. 361] et de la plante *mao*. CHENG SZ'-NUNG thinks that 茅 *mao* [r. *infra*, 459] is to be understood, the young sprouts of which are eaten. But the other commentators do not assent to this interpretation and identify the plant in question with *fu k'ui*. The *mao* was one of the seven vegetable pickles [r. *supra*, 376, note].

The *mao* is also mentioned in the *Shan hai king*. K'uo P'ao identifies it with *fu k'ui*.

LU KI :—The *mao* resembles the *ling ts'ai* [see the next]. The leaves are round like a hand, of a red colour, succulent and slimy, they slip between the fingers. The stalks are long. The plant can be eaten raw or cooked. The people of Kiangnan call it 蓴菜 *shun ts'ai* (*shun* vegetable) also 水葵 *shui k'ui* (water-mallow). It is a common plant in pools and rivers.

P., XIX, 24, *shun*. The figure in *Ch.*, XVIII, 14, a water-plant with peltate leaves.

SIEBOLD, *Syn. plant. oron. jap.*, 207, *Villarsia peltata* 蓴 *zjun sai*, Herba mucilaginosa in jusculis magni estimata.

According to FRANCHET & SAVATIER [*Enum. Pl. Jap.*, I, 25], the plant figured in the *Phun zo* [XXXIV, 10] under 蓴 or *djioun sa* is not *Villarsia peltata* (= *Limnanthemum peltatum*, Griseb., order *Gentianaceae*), but *Brasenia peltata*, Pursh., a water-plant, order *Nymphaeaceae*, found also in North America and India. [See *Botan. Mag.*, tab. 1147.] It was first called *Hydropeltis purpurea*. The whole plant is coated with a gelatinous substance. It is the *Meganthex nymphoides* of THUNBERG [*Flora jap.*, 82]. In the *Amen. erot.* [82] the above Chinese and Japanese names are erroneously referred to a *Sagittaria*.

This plant has not yet been met with in China by European botanists, but the drawing in *Ch.* may well represent *Brasenia*, and the above early description of it by LU KI agrees.

E., 65, family 蓴. Figure probably a *Nymphaeacea*, but different from *P.*, XIX, 24.

Mao is also a synonym of 女苑. *E.*, 130.

Jap., 372, *Brasenia peltata*.

399.—The water-plant 荇菜 *king (hang) ts'ai* (the first character is also written 荇, according to the *Shuo wen*) mentioned in the first ode of the *Shi king*, has been erroneously identified by LEGGE with the duck-weed, *Lemna minor*.

Shi king, I:—Here long, here short is the duck-weed (*hang ts'ai*), to the left, to the right, borne about by the current.

LEGGÉ says:—The *hang ts'ai* is described (by CHU HI) as growing in the water, long or short, according to the depth, with a round reddish leaf, which floats on the surface and is

rather more than an inch in diameter. Its flower is yellow. It is very like the *shua* [see the preceding] which MEDHURST calls the marsh mallow, but its leaves are not so round, being a little pointed.

This plant is mentioned in the *Rh ya* [47] *hing* or *tsie yā*.

LU KI:—The *hing* or *tsie yā* has a white stalk. The leaves are of a purplish red colour, they are orbicular (peltate), more than an inch in diameter. They float on the surface of the water; the root is at the bottom, short or long according to the depth of the water. The upper part is green, the inferior part white. The people eat the white stalks. They are also steeped in bitter wine.

At Peking *hang ts'ai* is *Limnanthemum nymphoides*, Link., an aquatic *Gentianaceae* with sub-orbicular floating leaves and yellow flowers.

P. XIX, 23. *hang ts'ai*. Some ancient authors identify it with the *ju k'ai* [see the preceding]. Figured in the *Kiu huang*, LIII, 25, and *Ch.*, XVIII, 15.

Amom. exot., 薺 *kjou* and *kao*, vulgo *asasa*, *Nymphaea folia* Thore valdensis. *So moku*, IV, 15, 薺菜 *atsa dsa*, *Limnanthemum nymphoides*.

V. *supra*, 47. *Jap.*, 1283.

400.—The 蘋 *p'in* is another aquatic plant mentioned in the *Shi king*. LEGGE says it belongs to the same species of aquatic plants as the *hang ts'ai*. The *Pen ts'ao* says:—There are three varieties of it, the large called *p'in* the small 浮萍 *fou p'ing* and the middle *hang ts'ai*. MAO makes the *p'in* the large variety, while CHU HI and some others make it the third. The *p'in* may be eaten, says YEN TSAN, but not the *fou p'ing*. *P'in* is probably *Lemna trisulca* [LEGGE].

Shi king, 25 [Ode devoted to the *p'in*]:—She gathers the large duck-weed (*p'in*). See the *Rh ya*, 113, 114, 萍 or 萍 *p'ing* the smaller, *p'in* the larger kind.

LU KI :—The *p'in* belongs to the plants on the surface of the water which we call *fou p'ing*, floating *p'ing*. The smaller kind is called 萍 *p'ing*. In the middle of spring it begins to grow. It is eaten cooked with soup. It is also steeped in bitter wine.

P. XIX, 21, 蘋 *p'in*, also 四葉菜 *Sz' ye ts'ai*, four-leaved vegetable, 萍菜 *fou ts'ai* and 田字草 plant (with leaves disposed) like the character 田. Ch., XVIII, 6, depicts, under *p'in*, a water-plant with leaves disposed in a cross, evidently a *Marsilea*, probably *M. quadrifolia*, L.

The *Phon zo* [XXXIV, 3] represents under 蘋, also 水鼈 (water-turtle), *Hydrocharis morsus ranae*, L., a small floating aquatic plant with stalked, kidney-shaped leaves and flowers with three delicate petals. The same Japanese work figures [l. c.] under the Chinese name 田字草, *Marsilea quadrifolia*. It seems that the Chinese also confound these two plants under the same names, for some of the ancient authors quoted in P. say that the *p'in* has white flowers. This does not agree with *Marsilea*, which is an aquatic pseudofern, and has no flowers. Besides this, Ch. XVII, 36, figures under 馬尿花 *ma niao hua* or 萍菜 *fou ts'ai* [c. *supra*, P., synonym of *p'in*] *Hydrocharis morsus ranae*.

As to the 萍 or 萍 *p'ing*, which the *Rh ya* calls the smaller kind, this is mentioned in the Ritual Classics. LEGGE translates correctly duck-weed.

In the *Chou li* [II, 380] we have the 萍氏 *p'ing shi*. Préposé aux plantes flottantes. Commentator B. (CHENG HUAN) :—Il recueille les plantes qui flottent, telles que les lentilles d'eau.

Li ki, I, 262 [*Yü ling*] :—Last month of spring, duck-weed (*p'ing*) begins to grow.

P. XIX, 18, 水萍 *shui p'ing* or 浮萍 *fou p'ing* (floating *p'ing*), same as the *p'ing* of the Classics. The plant repre-

sented under these names in *Ch. XVIII*, 5, is no doubt duck-weed, *Lemna*. At Peking *Lemna minor* is called *fou p'ing*.

Amoen. erot., 900, 萍 *fé*, vulgo *ukingusa*, i.e., herba natans. *Lenticula palustris vulgaris*. *Phon zo*, XXXIV, 1, 水萍 *Spirodela (Lemna) polyrhiza*, SCHLEID.

V. supra, 113, 114. The figures of *E.* do not agree with those of *P.*, XIX.

Jap., 1241, *Lemna minor*, L., 浮萍. This name also for *Salvinia natans* in Szechuan.

" 1242, *Lemna trisulca*, L., 品藻苔.

" 1112, *Hydrocharis asiatica*, Miq., 水鼈.

" 2133, *Spirodela polyrhiza*, Schl., 紫背浮萍.

" 1501, *Nuphar japonicum*, DC., 萍蓬草.

401.—The character 藻 *tsao* occurs frequently in the Classics. LEGGE translates it by pond-weed, tassel-pond weed or *Ruppia rostellata*, sometimes by duck-weed. Comp. also *W.D.*, 953, *Valisneria*, *Hippuris*. This character means also elegant fine composition, because the leaves of the *tsao* plant are fine and pretty.

Li ki, II, 34 :—The capitals of the pillars in the grand temple with hills carved on them, and the pond-weed (*tsao*) carving on the small pillars. The same see *CONF. Anal.*, 43.

Shi king, 25 :—She gathers the pond-weed (*tsao*) in those pools left by the flood. 400 :—The fishes among the pond-weed [title of an ode]. 617 :—Pleasant is the semi-circular water (surrounding the college), and we will gather the *k'iu* [c. 370], the *tsao* and the mallows [c. 398] about.

Shu king, 80 :—*Tsao*, a water-plant, duck-weed, one of the emblematic figures of the lower sacrificial robe of the Emperor.

LU KI :—The *tsao* is a water-plant. It grows at the bottom of the water. There are two kinds. One of them has leaves like those of the 雞蘇 *ki su*, (a labiate plant). The stem is as thick as a quill, from four to five feet long. The stem of

the other kind is as thick as a hair-pin; its leaves resemble those of the 蓬蒿 *p'eng hao* (*Chrysanthemum coronarium*). This is called 聚藻 *tsū tsao* (tufted *tsao*). The people of 扶風 *Fu feng* (in Shansi) say that it emits a sound. Both kinds of *tsao* are eaten. When cooked they lose their unpleasant smell. They are boiled with flour, and furnish a relishable dish. In Yang chou, in time of dearth, the *tsao* plant serves as a substitute for corn.

Both MAO and CHU HI identify the *tsao* of the *Shi king* with the *tsū tsao*.

P., XIX, 26, treats of these plants under the head of 水藻 *shui tsao*, fresh water *tsao* (for there is also a 海藻 *hai tsao* or sea *tsao*). The ancient authors quoted there call the larger kind 馬藻 *ma tsao* [see the *Rh ya*, 111]. It is said to have opposite leaves resembling those of purslane, two or three inches long. The other kind, the *tsū tsao*, has fine slender leaves resembling raw silk, others say the gills of a fish, and are arranged in whorls around the stem.

Ch., XVIII, 23, represents under *tsao*, also called 札草 *cha ts'ao*, a *Myriophyllum*. At Peking *cha ts'ao* is the popular name for *M. spicatum*, L.

The above-noticed metaphorical meaning of the character *tsao*, "elegant composition," is derived, it seems, from the elegant pinnatifid capillary leaves of the *Myriophyllum* or Water Milfoil.

The *Phou zo* [XXXIV, 12] figures under 馬藻 a pondweed, *Potamogeton crispus*, L., and under 聚藻 *Myriophyllum spicatum*, L.

V. *supra*, 111. *Jap.*, 1470-1472, three *Myriophylla* without specific Chinese names.

Jap., 2403, *Zostera marina*, L., (Naj.) 大葉藻.

" 1742, *Potamogeton oxyphyllus*, Miq., 馬藻.

" 536, *Ceratophyllum demersum*, L., 聚藻.

" 1743, *Potam. polygonifolius*, Pourr., 眼子菜.

" 1984, *Salvinia vulgaris*, Mich., 槐葉蘋.

VII.—Various Herbaceous Plants.

402.—卉 *Hui*, in the Classics, is a general name for herbaceous plants. [See the *Rh ya*, 30.]

Shi king, 264, 266 :—The plants and trees (卉木 *hui mu*) grow full of verdure. 357 :—The autumn days become cold and the plants all (百卉 *po hui*) decay.

Shu king, 108 [“Tribute of Yü”] :—The wild people of the island brought garments of grass (卉服 *hui fu*).

403.—芍藥 *Sho yo*, a plant mentioned in the *Shi king*. 148 :—Gentlemen and ladies presenting one another with small peonies (*sho yo*). MAO explains, that it is a fragrant plant.

The *sho yo* is also mentioned in the *Shan hai king*. K'UO P'AO identifies it erroneously with the 辛夷 *sin i*, which is a tree (*Magnolia*). The *Kuang ya* gives 樂夷 *lutu i* as a synonym for *sho yo*.

LA' KI :—The *sho yo* is a medicinal plant, not fragrant. It is mentioned in the poems of SZ' MA SIANG AN [2nd century B.C.] and YANG HUANG [1st century B.C.]

The *sho yo*, or, as the name is pronounced in the north, *shao yao*, is still the name for *Paeonia albiflora*, Pall., a common plant in the mountains of North China, also much cultivated in gardens. The root is in great repute as a medicine. The first character of the name is now generally written 芍.

P., XIVa, 18. *Ch.*, XXV, 16, good drawing.

Amoen. exot., 862, 芍藥 *saku jaku*, item *kawu junkusa*. *Paeonia communis* sen femina, trifolio ramoso, flore sanguineo simpliciter. KEMPFER notices two varieties. SIEBOLD, *Syn. plant. ocon. jap.*, 289, *Paeonia albiflora* 芍藥 *sak jak*.

Colitur tam ob flores speciosos tam ob radicem qua in usum officinarum colligitur. *So moku*, X, 23, under above Chinese name, japonice *sjak jok*, *P. albiglora*.

E., 115, 116, family 芍藥, with good figure of *Paeonia albiglora*.

Sm., 169.

404.—鞠 *Kū* is an ancient form for 菊 *kū*, the well-known garden flower *Chrysanthemum sinense*, Sab.; the character is met with in the *Rh ya* [130] and in the Ritual Classics.

Li ki, I, 291 [*Yue ling*]:—Last month of autumn. Chrysanthemums show their yellow flowers. (Chrysanthemums in China flower late in autumn and in winter). *Chou li*, II, 390:—Le préposé aux grenouilles est chargé d'éloigner les grenouilles et les crapauds. Il brûle des plantes *khieou* de l'espèce mâle (牡鞠), il les asperge avec les cendres de ces plantes et alors ces animaux meurent. Comm. B. (CHENG HËAN):—Le *khieou* mâle n'a pas de fleurs.

Calendar of the Hia, 105:—Ninth month. Become beautiful the Chrysanthemums. But the *kū* in 17, first month, is not, it seems, Chrysanthemum, as DOUGLAS translates, but rather the name of a star, as the Chinese commentator explains.

In the *Shun hai king* the common character 菊, for Chrysanthemum, occurs.

P., XV, 1:—*Kū*. Drawings, *Kin huan*, LIII, 20. *Ch.*, XI, 1, 2. *Amœn. exot.*, 875, 菊 *kik*, *kikf*, *kikku*, i.e., *Matricaria*, huic etiam *kaurara jamogi* dicta (*jamogi* *Artemisium* significat). Cujus cum sylvestris tum precipue hortensis, plurimæ sunt varietates. *So moku*, XVII, 18, 菊 *Chrysanthemum sinense*.

V. supra, 130.

405.—藺 *Kien*. This name occurs twice in the *Shi king*. MAO defines it by 藺 *lan*. LEGGE says that in the Japanese plates this plant plainly appears to be *Valeriana villosa*.

Shi king, 148 :—Ladies and gentlemen are carrying flowers of valerian (*kien*). 214 :—By the shores of that marsh, there are rushes and valerian.

LA KI :—The plant *kien* in the *Shi king* is the same as the fragrant plant 蘭 *lan*. This latter is mentioned in the *Tso chuan*, also in the *Ts'u sz*, or *Elegies of Ts'u* [by K'U YÜAN, 4th century B.C.] K'UNG Tsz (Confucius) says [probably in the *Kia yü*, or *Family Sayings of C.*], the *lan* is the fragrant (fragrant flower) of the *king*. The stem and leaf are like those of the medicinal plant 澤蘭 *tse lan* (marsh *lan*). The joints are wide apart, and the stem between them is red, and it rises to a height of four or five feet. In the time of the Han, this plant was cultivated in the Imperial gardens. It was added to cosmetics, and was used also to preserve clothes and books from insects.

The *lan* is mentioned in the *Hia Calendar* [74, fifth month] :—Tenderly nurtured are the *Vanda* plants. I agree with Prof. DOUGLAS in this identification of the *lan*.

LI KI, I, 458 :—If anyone give the wife an article of food and dress, a piece of cloth or silk, a handkerchief for her girdle, an *Iris* [*ch'i*, v. *infra*, 411] or *Orchid* (*lan*), she should receive it and offer it to her parents-in-law.

Tso chuan, 294 :—The *lan* is there called the most fragrant flower of the State. A legend reported regarding this flower and a Duke of one of the feudal states [B.C. 603].

LI sao :—The fragrant *lan* plant is frequently mentioned by K'U YÜAN [4, 10, 13, 19, 49, 55, 56, 58]. In 4, he speaks of the *ts'iu lan* or autumn *lan*. The name of the *lan* flower appears frequently in the compositions of the ancient Chinese poets.

The account given of the *lan* in the *Rh ya i* is very obscure. It is said there to be a very fragrant plant which grows in the depths of forests. It resembles the *kui* [see the *next*] but differs from the latter in bearing only a single

flower on each stem, whilst the *hui* has five or six flowers on the same stem.

I can also make nothing of the descriptions of the *lan ts'ao* found in *P. XIVb*, 75. A number of synonyms are given there, and it seems the authors confound several quite different plants. *Ibidem*, 78, the 澤蘭 *tse lan* is spoken of.

In the *So moku* [XV, 55] 蘭草 is *Eupatorium chinense*, L., and, *Ibidem* [57] 澤蘭 is also a *Eupatorium*. The Chinese drawings in *Ch. XXV*, 1 and 13, under the above Chinese names, seem also to be intended for *Eupatorium*, a genus of the order *Compositae*, of which six species are known in China. Although the flowers of *Eupatorium* exhale an odour which is not unpleasant, I do not believe that the famous perfume *lan* of the ancient Chinese can be referred to this plant. I agree with WILLIAMS that the *lan* must rather have been an orchidaceous plant, for even nowadays this name is applied to plants of this order, cultivated for the powerful fragrance of their flowers. Comp. BRIDGMAN'S *Chrest.*, 452:—Air plant, *Aërides* and *Vanda* 吊蘭 *tiao lan* (suspended *lan*), 風蘭 *feng lan*. See also LOUREIRO, *Flora coch.*, 642:—*Aërides odorata*, found in the forests of China. HENRY [*l. c.*, 456]:—*Tiao lan* in Hupei *Dendrobium nobile*, Lindl. I am not aware whether this orchid is fragrant. But now the name *lan* is also extended to many other fragrant flowers. [See *W.D.*, 501.]

E., 81, family 蘭, with three figures, an orchid (not *aërides*), 澤蘭 an Umbellifera, and 馬蘭, *Jap.*, 294, *Aster trinervius*, Roxb., var. *congesta*, Fr. & S.

Jap., 913, *Eupatorium chinense*, L., 蘭草.

" 914, " *japonicum*, Thbg., 山蘭.

S., XII, 5. *Sm.*, 120.

406.—蕙 *Hui* is the name of another fragrant plant which occurs repeatedly in the *Shan hai king* and in the *Li sao*. Kuo Po explains that it is a kind of *lan*, and that some say

it is the same as 薰 *hān*. The term *hui* is met with five times in the *Li sao* [6, 10, 15, 30, 55]. The *Kuang ya* identifies the *hui* and the *hān*.

The *Rh ya i* says the *hui* resembles the *lan*, it grows in the mountain forests, flowers in spring, earlier than the *lan*, bears from five to six flowers on the same stem. According to the *Kuang chi* [5th century] this plant has purple flowers. The Emperor Wu TI of the Wei dynasty [5th century] used this fragrant plant for burning.

The *hui* was probably also an orchid. [See *W. D.*, 264].

E., 84, family 蕙, with bad figure, apparently of a Labiate.

The names of 407 are given here as synonyms. *Melilotus* [*v. supra*, 354].

407.—The 薰 *hān* is mentioned in the *Shan hui king*, where it is said that it is a fragrant plant resembling in smell the *mī wu* [see 89]. Its leaves resemble the leaves of hemp: square stem, dark red flowers. This plant worn in a girdle expels noxious influences. See also the quotation from the *Tao chuan*, regarding the character *hān* [*supra*, 85].

In *P.*, XIVb, 72, this plant is noticed under the names 薰草 *hān ts'ao* or 零陵香 *ling ling hsiang* [*Ling ling* = present Yungchou-fu in Southern Hunan]. LI SHI-CHEN says that this was the fragrant plant the ancients used to burn, to make the spirits descend. No conclusion can be drawn from the vague descriptions of the plant as given by Chinese authors.

Ch., XXV, 60, figures under the above names a labiate plant. The author of that work says that this plant at Peking is known by the name of 矮羅 *ai kang*. But the latter is there the common name of *Ocimum basilicum*, L., *Basilic*, the leaves of which have a strong but pleasant aromatic smell.

The *Phon zo* [XI, 11] figures under 薰草 or 零陵香 *Melilotus arvensis*, Wallr., and the *So moku* [XIV, 16, 17]

草零陵香, *M. corulea*, Lam., and *M. arvensis*. The latter Chinese name is taken from the *Kiu huiy* [LVIII, 20] where a rude figure of a trifoliate plant is given.

408.—鬱 *Yü* was the name of a fragrant plant which was mixed with the sacrificial wine called 鬯 *ch'ang* [*r. supra*, 349].

Chou li, I. 465 :—Officier des plantes aromatiques *go* (鬱). Lorsqu'on doit faire des libations dans les sacrifices et aux réceptions des visiteurs étrangers, il effectue le mélange des plantes *go* et du vin odorant (鬯). [Comm. B.] :—C'est la plante aromatique *go kin*. On l'emploie pour aromatiser le vin des sacrifices.

CHENG HÜAN's commentary says 鬱金香草 *yü kin hsiang ts'ao*. (BIOT reads *yü kin*, a fragrant herb). But it may also be translated the plant *yü kin hsiang*. *Yü kin* and *yü kin hsiang* are two different plants.

Lü ki, II, 141 :—The mortar for the fragrant herbs (*yü*) in making sacrificial spirits (*ch'ang*) was made of cypress wood [櫨 see the *Rh ya*, 225] and the pestle of *Dryandra* [梧 which is *Sterculia*, *l.c.*, 283, 516]. The ladle (for lifting out the flesh) was of mulberry wood.

Tubers received from China under the name of *yü kin* are figured in HANBURY'S *Science Papers* [254]. He found that they belonged to a species of *Curcuma* or Turmeric. They had an aromatic odour.

P., XIVb, 52 :—*Yü kin*. The description given of this plant by several ancient authors agrees with *Curcuma*. Yellow root ; it is plainly stated that it is not fragrant. The plant resembles ginger, grows in Shu (Sz'ch'uan). The root is used for dyeing women's clothes. Drawing, *Ch.*, XXV, 37 (only leaves).

SIEB., *Syn. plant. japon.*, 100 :—*Curcuma longa*, L., 鬱金, *ukon*. Radix tinctoria, in provinciis meridionalibus Japoniæ colitur. E China introducta,

So moku, I, 4, same Chinese name, *C. longa*, var. *macrophylla*, Miq.

In *P.* [*i.e.*, 67] an obscure account is given of the plant called *yā kin hiang*. It is there said to be a foreign plant of Western Asia or India with fragrant flowers. The Buddhist priest HUEN TSIANG mentions it in the mountains of Hindukush and in Kashmir [BEAL'S *Sī yu ki*, I, 54, 120, 148: II, 125].

The two plants *yā kin* and *yā kin hiang* are sometimes confounded by Chinese authors. *Yā kin hiang* is not *Curcuma*, as Dr. EITEL, in his *Handbook of Chinese Buddhism*, states, but an entirely different plant. WILLIAMS [*Diet.*, 1139] thinks that this name denotes the Sumbul root. The drawing of the plant in *Ch.*, XXV, 38, seems to be a product of imagination. The *Phon zo* figures [XI, 5, 6, 7] under 鬱金香, several plants, an *Iris* and *Tulipes*, it seems.

The Chinese commentators seem to agree that the plant *yā* of the Classics was the *yā kin*, not the *yā kin hiang*. The *Rh ya i* quotes a passage from the *Shi king* [445] where the sacrificial wine is called 黃流 *huang liu* (yellow liquid) and explains this name by the yellow colour of the enurema root.

E., 163, family 鬱金, figure may be of *Curcuma*. The figure to *P.*, XIVb, differs widely.

Jap., 719 [*r. supra*, 379].

409.—The character 芸 *yūn* occurs in the Classics with different meanings. In the *Shi king* [384, 423] we have 芸其黃, which LEGGE translates, according to MAO's and CHU's interpretations, by (flowers) of a deep yellow. In the CONF. *Anal.* [199] *yūn* stands for 耘 (to weed). In MENCIUS it has the same meaning. But the principal meaning of the character *yūn* seems to refer to a fragrant plant, and in this sense we find it in the *Hsia Colendar* and in the *Li ki*. DOUGLAS translates *yūn*, on the authority of WILLIAMS, by rue, LEGGE by rice,

Hia Culendar, 16:—First month is picked the rue.
35:—Second month, beautiful is the rue.

Lí ki, I, 304 [*Yue ling*]:—Second month of winter. Rice (*yün*) begins to grow. The Chinese commentator explains *yün* in this passage by fragrant plant. I cannot understand why LEGGE makes it to be rice.

The *Rh ya i* says regarding the *yün*:—It is a kind of pea (*uan tou*); its leaves are very fragrant. In autumn they are mealy white. The people in the south put the *yün* plant under their mats and in books to drive away insects. Now it is called 七里香 *ts'i li hiang* (seven li fragrance).

[Comp. also the *Rh ya*, 146.]

410.—芷 *Chi*. A fragrant plant growing in deep valleys, mentioned in the *Li sao* [4, 10, 55]. The Chinese in ancient times used to wear this, together with other odoriferous plants, in their girdles. The name of a plant 藜 *yo* occurs several times in the *Shan hai king*. KUO P'ao says it is the 白芷 *pai chi*; the *Kuang ya* says the leaves of the *pai chi*. In *W.D.* [1116] this character (*yo*) is given as an equivalent for 藥 (medicinal herb).

According to *P.* [XIVa, 11] *chi* is the same as the plant now called 白芷 *pai chi* (white *chi*), mentioned as a fragrant medicinal plant in the *Pen ts'ao king*. It is also called 芳香 *fang hiang*. The very white aromatic root is used as a medicine.

Ch. [XXV, 8] figures under *pai chi* a large umbelliferous plant. PARKER [*China Rev.*, X, 299] states that the *pai chi* is widely cultivated in Sz'ch'uan. PORTER SMITH [*Chinese Materia Medica*, 120] identifies it erroneously with *Iris florentina*, as also does WILLIAMS.

SIEBOLD, *Syn. plant. acon. jap.*, 253:—白芷 or *bidjakusi*. *Selinea*? Colitur in usum officinarum. [Compare drawing

under the same Chinese name in the *P'hou zo*, IX, 10, 11]. An umbelliferous plant.

The *pai chi* may be an *Angelica*.

E., 157, family 白芷, with good figure of *Angelica anomala*. 411 is a synonym.

C., 946. *S.*, II, 29. *Jap.*, 166.

Other *Angelicas* are mentioned *Jap.*, 168, *A. decursiva*, Miq.,

前胡.

Jap., 170, *A. inaequalis*, Max., 蜀活. 171, *A. kinsiana*, Max.,

威草.

411.—*芷* *Ch'i*. This is likewise a fragrant plant mentioned in the *Li sao* [6, 13, 15] as worn in a girdle together with other perfumes. In the *Li ki* [I, 458] this plant is noticed together with the *lan*. LEGGE identifies it erroneously with *Iris*. [See the quotation, *supra* in 405.]

The *Shuo wen* says:—The *ch'i* has several names. In 齊 *Ts'i* (Northern Shantung) it is called *ch'i*; in 晉 *Tsin* (Southern Shansi) it is 藹 *hiao*, in 楚 *Ch'u* (Hukwang) it is called 藹 *li*. The name *hiao* occurs also in the *Shan hai king*. Kuo P'o explains it by fragrant herb.

P. makes the *ch'i* to be the same as the *pai chi* [see the preceding], and identifies it also with the plant mentioned in the *Rh ya* [98], but that seems to be a mistake.

412.—江蘺 *Kiang li*, a plant mentioned in the *Li sao* [4, 58]. *Li des rivières*, plante aromatique. In *W.J.* [517] *kiang li* is translated by water-grass, sedge, referring probably to the *Rh ya* [98]. But the *Shuo wen*, and the ancient commentators on that Dictionary, identify it with the plant noticed in the *Rh ya* [89] *mi (mei) wu*.

P., XIVa, 5, 9. The ancient authors quoted there state that 蘺蕪 *mi wu* or *kiang li* are names applied to the fragrant young leaves of the plant culled 葑薹 *kung k'iang* or 川葑 *ch'uan kung*, the root of which is used in medicine.

The best comes from Shu or Sz'ch'uan. Judging from the description of the Chinese authors, this is an aromatic umbelliferous plant, probably an *Angelica*. See the drawings in the *Kin huang* [XLVI, 31] and *Ch.* [XXV, 4]; umbelliferous plant.

There is a passage in the *Tso chuan* [315, 321] referring to the year B.C. 595:—Have you any spirits made from the hill-grass? The Chinese text has only 山鞠窮. The Chinese commentators say that the medicinal plant *kung k'ung* is meant, which is steeped in wine.

SIEBOLD, *Syn. plant. japon.*, 254:—青薺 *Sen kjo*. *Selinea*? Colitur in usum officinarum. *So moku*, V, 2, under the above Chinese name, also 川芎, not determined. *Ibidem*, 2, 3, 大葉川芎 (large leaved *ch'uan kung*) *Angelica refracta*. [See also the *Phou zo*, IX, 3, 4.]

Synonym of *supra*, 89.

413.—藜本 *Kao pen* or 藜菱 *kao po*. Both these names occur in the *Shan hai king*. Kuo P'ao explains them by fragrant herb.

P., XIVa, 12, *kao pen*, also 藜本香 *kao pen liang* and other names. A plant much valued in ancient times for its fragrant root. It is said to resemble the *kung k'ung* [412], and we may therefore suppose that it is an umbelliferous plant. The rude drawings of the plant [*Kin huang*, XLVI, 24, and *Ch.*, XV, 19] may well represent a plant of that order. TATARINOW, *Catal. med. sin.*, 26, *kao pen*. Rad. Conii, s. Cicutæ?

So moku, V, 4, 藜本, *Nothosmyrnicum japonicum*, Miq. This umbelliferous plant is found in Japan, but it has also been collected by Father DAVID in the Province of Kiangsi. See FRANCHET, *Plante Davidianæ*, I, 140.

Jap., 1500.

414.—杜衡 *Tu heng*, likewise a fragrant plant, mentioned in the *Shan hai king*. [See also the *Rh ya*, 156.]

P., XIII, 54, *tu heng*. The ancient authors describe it as a small plant, resembling the 細辛 *si sin*. It has roundish leaves resembling in shape a horse's hoof, violet flowers. Fruit of the size of a pea (bean). It contains small seeds. The fragrant root is used in medicine. The Taoists employ it for scenting clothes. The *si sin* is described *P.*, XIII, 51. The drawings of the *tu heng* and the *si sin* [*Ch.*, VIII, 27, and VII, 25] both represent species of *Asarum*. LOUREIRO, *Flora coch.*, 357, *Asarum virginicum*; since *si sin*. Habitat inuentum in variis Sinarum provinciis. HENRY [*l.c.*, 151]:—*Si sin* is at Ichang *Asarum Sieboldi*, Miq., and [152] 馬蹄香 *ma ti hiang* (horse's hoof fragrance), *Asarum* with large flowers.

So moku, IX, 5, 細辛 *Asarum Sieboldi*, Miq.; *Ibidem*, 8, 杜衡 *As. Blumei*, Duch.

HOFFM. & SCHULTES [324] apply erroneously the above Chinese names for *Asarum*, *tu heng* and *ma ti hiang*, to *Ligularia Kämpferi*.

V. supra, 156. *Jap.*, 235, *Asarum Blumei*, Duch., 杜衡.

" 236, " *caulescens*, Miq., 莠藥細辛.

" 237, " *Sieboldi*, Miq., 細辛.

415.—薜荔 *Pi li*. Name of a plant mentioned in the *Li sao* [13]. Je fais des guirlandes avec les fleurs tombées du *pi li*. The *Rh ya i* says that this is the same as 薜荔 *pi li* in the *Shan hai king*, a plant which climbs on rocks and trees. When eaten it removes pain in the heart. K'uo P'o says it is a fragrant plant.

The name *pi li* in China as well as in Japan is applied to one or several creeping species of *Ficus*. See *P.*, XVIIIb, 40, 木蓮 *mu lien*, which is another name for the plant; *Ch.*, XX, 3, the plant figured is probably *F. pumila*, L.

The Chinese name 薜荔 in Japan is given to *F. pumila*, according to HOFFM. & SCHULTES; to *F. erecta*, THBG., in

SIEB., *Syn. plant. acon.*, 173; to *F. nipponica*, Franchet, in SIEB. *icon. jap. ined.*, VII.

But the name *pi li* in the *Li sao* does not seem to refer to a *Ficus*, for the minute flowers of a fig are enclosed in the fleshy receptacle, and cannot therefore drop off as the text of the *Li sao* implies.

W.D. [675] says that *pi li* is an herb resembling celery or smallage, and that it is also one of the names for *Ficus pumila* in Formosa.

E., 142, family 薛荔, with figure probably of *Ficus pumila*.

Jap., 947, *Ficus nipponica*, Fr. & S., has this Chinese name.

" 944, *Ficus carica*, L., 無花果, also in China.

" 945, *Ficus erecta*, Thbg., 天仙果.

" 951, *Ficus stipulata*, Thbg., 木馒头.

" 952, *Ficus Wightiana*, Wall., 榕樹.

416.—In the French translation of the *Li sao* [p. 47] we read:—J'ai cueilli l'herbe magique pour faire un sortilège avec les tiges de la plante *yaï*.

The magic herb in the Chinese text is 葦茅 *k'uang mao*; the commentary says a fragrant herb. [Comp. the *Rh ya*, 72]. The *Shuo wen* identifies it with 薺 *shun*, which is *Hibiscus syriacus* [*v. infra*, 542].

It is not clear what M. D'HERVEY means by the plant *yaï*. Such a name is neither in the Chinese text nor in the commentaries. The text has 筵簞 *ting t'uan*, and the commentary explains, as I understand it, that *ting* means a small bamboo splinter, and *t'uan* in the country of Ch'u has the meaning to divine by means of knotting herbs (or the knotted herb) and bamboo splinters. [Comp. *K.D.*]

417.—荃 *Ts'uan*. A fragrant plant mentioned in the *Li sao* [55].

The *Shuo wen* explains the character by 芥脆 (ground mustard), also name of a fragrant plant. According to the

Shi i ki [4th century] the 荃蕪香 *tsū.in ren hiang* is a perfume. See *W.D.*, 1013.

E., 68, family 蒲, where *tsūan* is one of the 31 synonyms of *Acorus*. [I. 376.]

418.—宿莽 *Su mang*. *Li sao*, 3:—Le soir je recueillis le *so mou* des îlots (*mon* is a mistake in the translation for *mang*). See the *Rh ya*, 216.

419.—*Li sao*, 10:—J'avais couvert les fossés et les lisières de mes champs de *lieon y*, 留夷 et de *kie che* 揭車. The commentaries only say that both these names refer to fragrant plants. Regarding the *kie che* see the *Rh ya* [145]. See also *K.K.F.P.*, XCII, 7. The *Kuangchi* [5th century] says that the *kie che* has a pungent taste. It is several feet high, has white flowers. The *Hui yao Pen ts'ao* [8th century] states that it is found in the mountains of the island Hainan. It is offensive to moths and other insects. The people employ it to scent clothes.

420.—*Li sao*, 13:—Je fais avec le *hou ching* 胡繩 de belles cordes d'une grande longueur. It is unknown what the *hou sheng* was. The name means foreign rope.

421.—*Li sao*, 23:—Les (mauvaises) herbes *tse, lou* et *che* 蕪 remplissent le palais. Regarding the first two names see 427 and 461. The third (*shi*) is unknown.

422.—半夏 *Pan hia* (midsummer). This name occurs once in the *Li ki*. *LEGGE* calls it midsummer herb, a medicinal plant, white with round seeds, and of a hot and pungent taste.

Li ki, I, 274 [*Yue ling*]:—Second month of summer, The midsummer herb is produced.

P., XVIIb, 20, *pan hia*. A poisonous plant. The roots (tubers) used in medicine. Description not characteristic. Trifoliate leaves.

According to HANBURY [*Science Papers*, 262] who examined the Chinese drug *pan hia*, the small tubers sold in the apothecaries' shops of Shanghai under this name belong to *Pinellia tuberifera*, Tenore, an *Aroidea*. HANBURY figures the tubers. TATARINOW, *Catal. med. sin.*, p. 1, *pan hia*, *Radix Ari macrouri*, Bge., which is the same as *Pinellia tuberifera*. It seems to be a common plant in China. Leaves and tubers figured in *Ch.*, XXIV, 28, 30.

So moku, XIX, 2, 半夏, *Pinellia tuberifera*.

E., 136, family 半夏. Figure, copy of *S.*, IV, 3, a *Pinellia*, not *tuberifera*, but another undetermined, with one sagittate leaf. The figure shows one dot on the leaf which my specimens (from Mount Tien tai in Chekiang Province) have not.

The figure to *P.*, XVIIb, 20, indicates *P. tuberifera*. *C.*, 975. *Jap.*, 1638.

The name is also given to *Pinellia pedatisecta*, Schott., in Szechuan.

A., XV, 181, *Arisema Lourcieri*, Bl., and *Aris. cochinchinense*, Bl. *Sm.*, 149 [comp. 22, 26] also *Aris. ternatum* and *A. r. macrorum*.

Jap., 209, *Arisema japonicum*, Bl., 天南星.

" 210, " *ringens*, Schott., 由跋.

" 211, " *serratum*, Thbg., 斑杖.

" 212, " *Thunbergii*, Bl., 虎掌.

423.—*Menp.* LEGGE says, regarding this plant, mentioned in the *Shi king*, that it is a lily called the "mother-of-pearl" from the appearance of its shining bulbous roots, or, as others say, from that of its flower. It is the *Fritillaria Thunbergii*. Many medical qualities are ascribed to the root, among them that of dissipating melancholy.

Shi king, 88:—I will ascend that mound with the steep side, and gather the mother-of-pearl lilies.

See the *Rh ya* [75], where the name is written 蔞 *meng* and identified with 貝母 *pei mu*, which latter term LEGGE translates by mother-of-pearl, but WILLIAMS [*Diet.*, 609] more correctly by cowrie-mother [see further on].

LU KI:—The *meng* or *pei mu* is a medicinal plant. Its leaves resemble those of the *kua lou* (*Trichosanthes*), but are smaller. The seeds are produced beneath the root and resemble those of the 芋 *ya* (*Colocasia*). They are white, quadrangular shaped, of various sizes, and connected together. The Chinese author, in this confused account, seems to confound the seeds with the small bulbils forming the corn of the plant.

Father DAVID saw the Chinese plant, whose bulbs furnish the drug *pei mu*, at Moupin, on the borders of Tibet. According to FRANCHET [*Pl. Davidiana*, II, 130] this is *Fritillaria Roglii*, Hook, with yellow flowers. Another, new species, *F. Davidii*, likewise found at Moupin, is described as having corns formed of a number of small bulbils. It is, I suppose, the same with respect to the corns of the other species. FORTUNE in his *Wanderings* [261] notices a *Fritillaria* with greyish white flowers, cultivated for its bulbs, near Ningpo. This is probably the *pei mu* exported from Ningpo, mentioned in the *Reports on Trade, Chinese Maritime Customs*, for 1869, p. 66, where some interesting details regarding this drug are given.

In the *So moku* [V, 81] 貝母 is *Fritillaria Thunbergii*, Miq. But neither the account of the *pei mu* as given in *P.*, XIII, 39, nor the drawing in *Ch.*, VII, 42 (a plant with hastate leaves) agrees with *Fritillaria*. LU KI, as we have seen, makes the *pei mu* to have palmate leaves. The leaves of *Fritillaria* are generally linear-lanceolate, in some species broader, elliptical. The Chinese drug *pei mu* (bulbils) resembles indeed, as the Chinese name implies, the small

shells used for coin in many parts of Southern Asia and Africa under the name of *cowry* (*Cypræa moneta*).

HENRY [*l.c.*, 366] states that the plant which occurs on the mountains of the Patung district, and the bulbs of which are sold as a drug, is a new species of *Pleione* (an orchid). He thinks that the *pei neu* of Sz'ch'uan is not from the same plant.

V. supra, 75. *Jap.*, 974, *Fritill. Thunbergii*, Miq., 貝母.

C., 993, *Frit. Roylei*, Hk.

B., *Uvularia cirrhosa*, Thbg. *Sm.*, 112, 225, *Hernodactyle*;

Uvularia grandiflora. *A.*, XV, 136, *Thalictrum sinense*, Lour.

Szechuan, *Onnei*, *Rohdea japonica*, Roth.?

424.—**緩草** *Hūan ts'ao*, the plant of forgetfulness, *Shi king*, 106 :—

How shall I get the plant of forgetfulness?
I would plant it on the north of my house;
Longingly I think of my husband,
And my heart is made to ache.

MAO explains the name by 令人忘 (causes one to forget). CHENG HĒAN says that the plant is properly called 萱 *hūan*. The *Shuo wen* writes the name 蘓 or 煖 and explains that this plant causes one to forget his sorrows.

At Peking the name 萱草 *hūan ts'ao* is applied to *Heimerocallis fulca*, L., and *H. graminea*, Andr., species with orange and yellow flowers, both having long narrow leaves. They are common in the Peking mountains, and are more generally known by the name 黃花 *huang hua* or yellow flower. *H. fulca* is also much cultivated at Peking as well as in other parts of China. Its dried flowers are largely consumed as food by the Chinese and go also under the name 金鍼菜 *kin chen ts'ai* (gold needle vegetable). These are the *Lily flowers* of the *Chinese Maritime Customs Reports*. [See also LOUREIRO, *Flora cochin.*, 254.]

The *kāu ts'ao* is described in *P.*, XVI, 19. It is also called 鹿葱 *lu tsang* (stag's onion). Good drawings of it in the *Kin huan*, XLVI, 10, and in *Ch.*, XIV, 42.

Annen. exot., 872, 萱 *ken* vulgo *quanso* et *wasrigusa*. Iris hortensis latifolia, flore pleno magno coloris ignei. KEMPFER is mistaken, for in the *So moku* [VI, 13, 14] are represented, under the above Chinese and Japanese names, *Heimerocallis fulva*, *flava* and other species.

LEGGE thinks that the Japanese plates represent under *kāu*, *Heimerocallis japonica*. But this plant with white flowers and broad leaves (now generally considered as *Funkia*) is in China as well as in Japan, 玉簪 *yū tsan*.

E., 71, family 鹿葱, with good figure and 12 names.

S., XII, 33. *C.*, 476. *Sm.*, 110.

A., XV, 177, *Nerine* (*Heimerocallis*) *cochinchinensis*, Rœm.

Jap., 1076, *Heimerocallis Dumortieri*, Mort., 金萱.

" 1077, " *flava*, L., 萱草, one of the synonyms of *E.*

Jap., 1078, *Heimerocallis fulva*, L., 千葉萱草 = 金針花.

A., XV, 178. *Sm.*, 110, *H. graminea*.

" 1078, *Heimerocallis fulva*, var. *angustifolia*, Bkr., 黃萱.

" 1079, " *Middendorffii*, Max., 金萱 (= 1076).

" 977, *Funkia ovata*, Spr. 紫萼. Szechuan, *H. disticha*, 金珍花 and 土黃花.

" 978, *Funkia Sieboldiana*, Hkr., 玉簪.

425. 一苓 *Ling*. This name occurs twice in the *Shi king*. MAO explains it by *ta k'a* (the great bitter). CHENG HŌAN says that it is the 甘草 *kan ts'ao* of the *Pen ts'ao*. But the latter is Liquorice (*Glycyrrhiza*). [V. *supra*, *Rh ya*, 199, where the name is written 苓 *ling*, also *ta k'a*.]

Shi king, 62:—The Liquorice grows in the marshes. 187:—Would you gather the liquorice on the top of Shou yang?

426.—**游龍** *Yu lung* is the name of a plant mentioned in the *Shi king*, LEGGE calls it Water Polygonum, Polygonum. It is called *yu lung*, or wandering dragon, from the way in which its branches and leaves spread themselves out.

Shi king, 138 :—In the marshes is the spreading Water Polygonum. MAO explains *yu lung* by **紅草** *hung ts'ao* (red plant).

[See *Rh ya*, 102, **紅** *hung* or **龍古** *lung ku*.

LU KI :—The *yu lung* is also called **馬蓼** *ma liao* [Horse's Polygonum, comp. above, 366]. It is a tall plant, more than a chang high, grows in marshes. Large leaves, red or white.

In *P.* [XVI, 79] the name is written **葦** *hung*, also called **水葦** *shui* or water *hung*. This is the *Polygonum orientale*, a large, conspicuous species, a common plant all over China. It is also much cultivated in gardens as an ornamental plant. Figured in *Ch.*, XI, 90, and *Kim huang*, XLVI, 12.

Amen. exot., 891, **葦** *kuo*, vulgo *ke tade*, it, *im tade*, i.e. *Persicaria lanuginosa*; caule quadripedali, simplici, piloso, geniculis fimbriatis . . . folio corlato amplo . . . flore incarnato.

THUNBERG, *Flora jap.* [165] refers this to *P. barbatum*, but in SIEBOLD, *Syn. plant. aëron. jap.*, 103, and *Sa maku*, VII, 76, the Chinese name given by KEMPFER is applied to *P. orientale*.

427.—**莢** *Ts'z'*. This character occurs twice in the *Shi king*. LEGGE translates it correctly by *Tribulus terrestris*.

74 :—The *Tribulus* grows on the wall and cannot be brushed away, cannot be removed. 363 :—Thick grew the *Tribulus* on the ground, but they cleared away its thorny bushes.

In the *Rh ya* [90] the character *ts'z'* is explained by **莢** *tsi li*, which even now is the vulgar name for *Tribulus terrestris*, L., a common plant throughout China. It is a

creeper with abruptly pinnate leaves, yellow flowers and a pentagonal spinous fruit.

The *Shuo wen* explains the character *ts'z'* by to thatch a house with the *mao* and *wei* rushes [*v. infra*, 459, 455].

Li sao, 23, where the character is written 蓆 [see quotation *supra*, 421].

P. XVI, 86, *tsi li*. The ancient authors quoted say that the fruit of the *tsi li* resembles that of the *ling* or water caltrop, but is smaller, has three horns and is prickly. It has yellow flowers. There is another kind growing on sandy ground. It has small leaves, yellowish purple flowers resembling pea flowers, and produces pods (thus probably a leguminous plant). Drawings of the *tsi li* or *Tribulus* are found in the *Kin kuang*, *LII*, 3, and *Ch.*, *XI*, 27.

Phon zo, *XX*, 16, 疾梨, *Tribulus terrestris*.

V. supra, 90. *Jap.*, 2221.

428.—著 *Shi*. This is the divining plant, the stalks of which were used in ancient times for the purpose of divination. It is once mentioned in the *Shi king* [225]:—Cold come the waters down from that spring and overflow the bushy divining plant.

Chu Hi explains *shi* by 筮草 (divining plant).

Chou li, *II*, 80:—L'officier de la plante divinatoire (筮人 *shi jen*) s'occupe des trois méthodes des changements, et distingue les noms des neuf devins par la plante *chi* (*shi*). Les neuf devins servent pour distinguer le bonheur et le malheur. Dans toutes les grandes affaires d'état, d'abord on fait la divination par la plante *chi*; ensuite on augure par la tortue. Au commencement du printemps le même officier fait l'inspection des plantes divinatoires.

Li ki, *I*, 94:—On the subject of Divination. Divination by the tortoise-shell (龜 *kui*) is called 卜 *pu*; divination by the stalks (筮 *ts'e*) is called 筮 *shi*. The two were the methods by which the ancient wise kings made the people

believe in seasons and days, revere spiritual beings, stand in awe of their laws and orders; the method also by which they made them determine their perplexities and settle their misgivings. The commentator 呂氏 Lü says that 筮 stands here for 著 *shì*.

Ibidem I, 298 [*Yü ling*]:—First month of winter. Orders are given to the Grand Recorder to smear with blood the tortoise-shell and the divining stalks (筮 explained as above) and by interpreting the indications of the former and examining the figures formed by the latter, to determine the good and evil of their intimations. I, 385:—The ancient kings made use of the stalks [as above] and the tortoise-shell.

Shu king, 335:—Divination. In all the indications are seven, five given by the tortoise, two by the milfoil (*shì*).

BIOT says [in an article on the Manners of the Ancient Chinese, translated by LEGGE in his *Shi king*, Proleg. 142-171]:—We do not know well how this divination was performed formerly. At the present day they place on the right and on the left a packet of leaves of this plant (*shì*); then they recite some mysterious words, and by taking a handful of leaves from each packet, they prognosticate according to their number. LEGGE observes that stalks, and not leaves, have always been mentioned to him by Chinese describing the method of divination.

In the *Shi ki*, or *Historical Record*, in the article on divination, it is said that a hundred stalks of the *shì* plant come out from the same root. Where this plant grows neither tigers, wolves nor poisonous plants are found.

The *Shuo wen* says:—The *shì* is a kind of *hao* (*Artemisia*). The plant will yield, when a thousand years old, three hundred stalks. The lengths of the stalks used in the manipulation were: for the Son of Heaven 9 feet, for the fental princes 7, for the high officers 5, and for the graduates 3 feet,

CH' H1 says:—The way of divination by the tortoise was by the application of fire, to scorch the shell till the indications appeared on it; and that by the stalks of the *shi* plant was to manipulate in the prescribed way 49 of them, 18 different times, till the diagram was formed. LEGGE calls this divination sometimes “divination by reeds.” [*Shi king*, 98, 266.]

LEGGE [*Shu king*, 335] calls the *shi* plant milfoil. WILLIAMS [*Dict.*, 758] says it is a sort of syngenesious plant resembling the *Anthemis*, the *Ptarmica sibirica*, which grows around CONFUCIUS' grave in K'üeh fen, and, as was done in ancient times, is still sold there in parcels of 64 stalks, for divination. The stems were once used for hair-pins.

From the account given of the *shi* plant in *P.*, XV, 7, we may conclude that it belongs to the order of *Compositae*. The drawing of it in *Ch.*, XI, 5, is very rude, and no identification can be ventured.

In the *So moku*, XVII, 44, 蓍 is the *Achillea sibirica*, Ledeb. This is a common plant in the mountains of Northern China. But whether it really was the divining plant of the ancient Chinese, I am not prepared to say. At Peking the name *shi* is unknown.

E., 100, family 蓍. Figure the same as *P.*, XV, 7, which can neither be *Achillea* nor any other *composita*, but may be meant for a *Hypericum*?

S., i, 32, has two figures which may both represent *Hyperica*, one large flowered, the other small flowered.

Jap., 39, *Achillea sibirica*, Ledeb.

429.—The genus *Artemisia* is represented in China by a considerable number of species. FORBES and HEMSLEY, in the *Index Florae sinensis*, enumerate 21. In the *Shi king* we meet with eight names of plants referred by LEGGE and others to Southernwood or *Artemisia*,

The 艾 *ai*, which name occurs in the *Shi king* [120] has been correctly identified by LEGGE with the Mugwort, *Artemisia vulgaris*, L. It is one of the plants which the Chinese employ for their moxa.

MENCIUS, 177 :—The case of one of the present princes wishing to become emperor, is like the having to seek mugwort (*ai*) three years old to cure a seven years' sickness. If it have not been kept in store, the patient may all his life not get it. Commentary :—The down of the mugwort burnt on the skin, is used for purposes of cantery. The older the plant, the better.

The *ai* is mentioned in the *Rh ya* [77].

Li seo, 49 :—Sachets remplis d'arnoise (fétide), *ai*. 55 :—Mauvaises herbes. The Chinese text has *siao* [*r. infra*, 435] and *ai*.

P., XV, 8, *ai*. Other names :—醫草 *I ts'ao* (medicinal herb), 灸草 *chi ts'ao*, burning herb, *moxa*. Figured *Ch.*, XI, 81, *Artemisia vulgaris*. This is a common plant all over China, wild and cultivated.

Anæn. eccl., 897, 艾 *gui*, vulgo *janogi*. *Artemisia vulgaris* major ; quæ junior vocatur *fidz*, ex qua fit *moxa*, celebris stupra pro canterio actuali. So *moku*, XVI, 16, same Chinese name. *Artemisia vulgaris*.

Jap., 218, *Artemisia annua*, L., 黃花蒿.

" 319, " *apiacea*, Hec., 青蒿.

" 220, " *capillaris*, Thbg., 茵陳蒿.

" 222, " *japonica*, Thbg., 牡蒿.

" 224, " *Keiskeana*, Miq., 菴蒿.

" 227, " *Stelleriana*, Bess., var. *vesiculosa*, Fr. & S.,

白蒿.

" 228, " *vulgaris*, L., var. *vulgatissima*, Bess., 蕪蒿.

" 230, " *vulgaris*, L., var. *parviflora*, Max., 野艾蒿.

" 231, " *vulgaris*, L., var. *indica*, Max., 艾.

430.—**藜 Lou.** LEGGE calls it southernwood, a species of *Artemisia*.

Shi king, 17:—Many are the bundles of firewood. I would cut down the southernwood (*lou*) to form more.

Comp. the *Rh ya* [192]. *Shuo wen*:—The *lou* is a plant which is cooked with fish.

LU KI:—The *lou* is also called 藜蒿 *lou hao* (*lou Artemisia*). Its leaves resemble those of the *ai* (*Artemisia vulgaris*), are several inches long, of a white colour (downy). The plant grows to the height of more than 10 feet, by the edges of water or in marshy ground. In the first month the young white shoots, which are soft and fragrant, may be eaten raw. The leaves are eaten cooked.

Ch., XII, 6, figures under the name *lou hao* an *Artemisia* with large, deeply cleft leaves, resembling the plant in the *So moku*, XVI, 17, under the same Chinese name, which is a variety of *A. vulgaris*.

P., XV, 20, considers the *lou* to be the same as the 蒿白 *pai hao* or white *Artemisia*.

The text of the *Shi king* seems to imply that the *lou* was used for fuel. I may observe that among the Northern Chinese species of *Artemisia*, *A. campestris* answers best this purpose, for it is a shrub attaining considerable dimensions. It is very common in the Peking mountains and in Mongolia. The Mongols call it *shuralji* and, according to PRZEWALSKY, employ it largely for fuel.

431.—**蒿 Hao.** LEGGE says it is the male southernwood, but this term the Chinese authors apply to the next.

Shi king, 246:—With pleased sounds the deer call to one another, eating the southernwood (*hao*) of the fields. 350:—Large and long grow the *ngo* [c. 434]. It is not the *ngo* but the *hao*.

Li ki, I, 257:—First month of spring. If the governmental proceedings proper to autumn were carried out in spring, there would be pestilence, boisterous winds, rain in torrents; orach (藜) fescue (莠) darnel (蓬) and southernwood (蒿) would grow up together.

Rh ya, 13, hao or shen. KOU P'U explains the names by 青蒿 *ts'ing hao*.

LU KI:—*Huo* or *ts'ing hao*. It is fragrant and fit for being used as *moxa*. In 荊州 King chou and 豫州 Yü chou (Hukwang and Honan) the people call it 藪 *shen* (*kieu*). This latter character is explained in the *Shuo wen* by 香蒿 *hiang hao* (fragrant *Artemisia*).

P., XV, 16, 青蒿 *ts'ing hao* also 香蒿 *hiung hao*, and other names. From the descriptions given there it would seem that this is the *Artemisia annua*, L., a very common species throughout China, and very fragrant. Popular name at Peking *hiang hao*.

But in *Ch.*, XI, 92, the figure under 黃花蒿 *huang hui hao* (yellow flower *Artemisia*) seems to refer to *A. annua*, which identification would agree with the *So moku* [XVI, 27]. In the same Japanese work [25] 青蒿 is *A. apiacea*, Hce., which agrees with the figure under the same Chinese name *Ch.*, XI, 93.

Amæn. cec., 897, 蒿 *ko*, vulgo *jampji* *Artemisia folio tenuissimo*. THUNBERG [*Flora jap.*, 310] thinks that KEMPFER refers to *A. japonica*.

432.—藪 *Wei*. LEGGE says a species of southernwood.

Shi king, 351:—Long and large grows the *ngo* [v. 434]. But it is not the *ngo* but the *wei*.

Rh ya, 14, *wei* or *mou shen* (*kien*).

LU KI:—The *wei* is also called 牡蒿 *mou hao* (male southernwood). It begins to grow in the third month; in the seventh month it is in flower. The flowers resemble

those of the 胡麻 *hu ma* (*Sesamum orientale*), are of a reddish purple colour. In the eighth month the plant produces long pods pointed at the end like horns. It is also called 馬新蒿 *ma sin hao*.

Under the name 馬先蒿 *ma sien hao* with the above synonyms, *wei, mou hao*, *Ch.* [XI, 41] figures the *Incarvillea sinensis*, Juss., a beautiful plant of Northern China, order *Bignoniaceæ*, with large, scarlet flowers. LU KI's description agrees with this identification. The same plant is represented in the *Kiu huang* [XLVI, 33] under the names of 豬牙菜 *chu ya ts'ai* (pig's tooth vegetable) or *kûe hao* (horned *Artemisia*). These names refer to the long, curved capsules.

But other authors take the *wei* or *mou hao* (male southernwood) to be an *Artemisia*, and *Ch.* [XIV, 9] figures under these names an *Artemisia*. The drawing agrees with that found in the *So moku* [XVI, 20] under 牡蒿, which represents *A. japonica*, THUNBERG. [See also *P.* XV, 23.]

Jap., 1581, *Pedicularis resupinata*, L., 馬先蒿.

433.—藥 *Fan*. This is likewise an *Artemisia*. MAO explains the character by 白蒿 *pai hao* (white *Artemisia*).

Shi king, 22 :—She gathers the white southernwood (*fan*).
228 ["Life in Pin"] :—The young women take their deep baskets and go along the small paths, looking for the tender leaves of the mulberry tree; as the spring days lengthen out, they gather in crowds the white southernwood (*fan*).
264 :—Our wives go in crowds to gather the white southernwood (*fan*).

CHOU HI says that the leaves of the *fan* were used both in sacrifices and to feed the young silkworms which were later in being hatched. More correctly SÜ KUANG-KI says that the eggs are washed with a decoction from the leaves to assist their hatching [LEGGE].

See the *Rh yü* [12], *jan* or *p'o hao*. *Hia Calendar*, 30:—Second month. The *fan* plant is gathered. I do not know on what authority DOUGLAS translates *fan* by *Ailantus glandulosa*.

LU KI:—The *jan* or *p'o hao* is a kind of *ai* [*Artemisia vulgaris*, see 429] of a white colour (*i.e.*, downy leaves). It is also called 白蒿 *pai hao* (white *Artemisia*). It begins to grow in spring and (flowers) till autumn. It is fragrant, can be eaten raw and cooked. Another name for the plant is 游胡 *yü hu*. The people in 北海 *Pei hai* (Eastern Shantung) call it 旁勃 *p'ang pu*.

P., XV, 20, *pai hao*. The name is explained by the downy surface of the leaves. The figure of the plant in *Ch.* [XI, 7] is of no value. In the Peking mountains the people apply the name *pai hao* to *Artemisia Sierersiana*, Ehr. In the *So moku* [XVI, 26] 白蒿 is *Artem. Schmidtiana*. MAXIMOWICZ says:—*Tota argenteo-sericea*.

434.—蕤 Ó (*ngo*). This name LEGGE translates by Aster southernwood, because he found in the Japanese plates that the common name of the plant in Japan is 朝鮮菊 *Chao hien kû* or Aster of Corea. He says the white flower with which it is there depicted is very like a *Chrysanthemum*. I may observe that the plant mentioned in the *Amæn. exot.* [911] under *korei giku*, *Matricaria corensis*, is, according to THUNBERG [*Flora jap.*, 320], *Chrysanthemum coronarium*, L. But the ó, in China at least, is not *Chrysanthemum*. This character is not met with in the Japanese botanical works known to me.

Shi king, 279:—Luxuriantly grows the aster southernwood (ó) in the midst of that large monnd. 351:—Long and large grows the *ngo*.

The *Rh ya* [44] has ó or lo. MAO explains ó by 葍 *lo hao* as also does the *Shuo wen*. The *Kuang ya* has lo hao

or 蘼蒿 *lin hao*. Under the latter name the plant is noticed in *P.*, XV, 22. The other names are given as synonyms. The figure in *Ch.*, XIV, 24, under *ó hao* is rude. It cannot be decided what kind of plant is meant.

LU KI says:—The *ó hao* or *lo hao* grows in low, swampy places. Its leaves resemble those of the 邪蒿 *sie hao*, but are smaller. The stem of the plant can be eaten raw or cooked.

The 邪蒿 in the *So moku* [V, 12] is *Seseli libanotis*, Koch, an umbelliferous plant, but in the *Phon zo* [XLVII, 5] it is *Cordamine sylvatica*, Link., according to FRANCHET; but the drawing rather seems to refer to *Sisymbrium sophioides*.

蘭蒿 in the *Phon zo* [XIV, 6] is *Pedicularis sceptrum carolinum*, L.

V. supra, 44. *E.*, 62, family 蒿, p. 11, *lin hao*, with synonym

抱娘蒿. *Jap.*, 2089, *Sisymbrium Sophia*, L., 拈娘蒿. 2075, *Seseli Libanotis*, Koch, 邪蒿.

435.—蕭 *Siao*. LEGGE calls this the ox tail's southernwood.

Shi king, 120, 365:—Gathering the ox tail southernwood. 224:—Cold come the waters down from that spring and overflow the bushy southernwood (*siao*). 274:—How high and long is the southernwood. 471:—We take southernwood (*siao*) and offer it with the fat.

MAO explains the *siao* of the *Shi king* by 蒿 *hao*, *Artemisia*. *Li ki* [I, 443] *Artemisia* (*siao*) along with millet and rice burned with the fat of the victim in sacrifices. II, 221:—On sacrifices. The fat of the inwards was burned, and this was mixed with the blaze of dried southernwood (*siao*). This served as a tribute to the spirit.

Chou li, I, 84:—Le préposé au territoire hors banlieue fournit quand il y a des sacrifices les plantes odoriférantes (*siao*) et les herbes pour envelopper [*mao*, v. *infra*, 459]. The commentary explains *siao* by *hiang hao* (fragrant *Artemisia*).

Rh ya, 196 and 119. The *siao* is mentioned in the *Li sao*. [See quotation, *supra*, 429.]

LU KI:—The *siao* is now called 荻蒿 *ti hao*, also 牛尾蒿 *nin wei hao* (ox tail's southernwood). It resembles the *pu hao* [r. 433], has white (downy) leaves. It can be used for torches. Owing to its fragrance it is employed in sacrifices and burned with the fat of the victims.

P. does not notice this plant. *Ch.* [XII, 23] figures under *nin wei hao* or *siao* two plants which may be *Artemisia*.

The character 荻 *ti* properly denotes a reed or rush [r. *infra*, 455]. I may observe that the *Rh ya* [196] writes 荻 *ts'iu*, which latter name, according to HOFFM. & SCHULTES [50] in Japan is applied to *Antennaria* (*Gnaphalium margaritacea*, R. Br.

Jap., 1037, *Gnaphalium yedocense*, Fr. & S, 荻.

436.—There is finally the character 蓬 *p'eng* in the *Shi*, which LEGGE refers to *Artemisia*, on the authority of the *Shuo wen*, where *p'eng* is explained by *hao*. [See also the *Rh ya*, 15.]

Shi king, 36:—Strong and abundant grows the *Artemisia* (*p'eng*). 105:—Since my husband went to the east, my head has been like the flying (*pappus*) of the *Artemisia* (飛蓬 *fei p'eng*).

In the *Li ki* [I, 257] LEGGE translates *p'eng* by dandel: [see the quotation under 431].

P. [XXVI, 54] identifies the 蓬蒿 *p'eng hao* with the 茼蒿 *tung hao* which is *Chrysanthemum coronarium*, L. Drawings, *Ch.*, IV, 35, *Kiu huang*, LVIII, 31, *So moku*, XVII, 13.

CHU HI in explaining the term *fei p'eng* in the *Shi king* says that the *p'eng* has flowers like the catkins of the willow, which fly about in the wind like hair. But other authors [see the *Pi ya*, and *W.D.*, 661] say that by *fei p'eng*, or flying *p'eng*, the whole plant is meant, which is rooted up by

the wind and driven across the wastes. This phenomenon of plants being driven across the desert is frequently seen in Mongolia.

In the *Phon zo*, XII, 20, 飛蓬 is *Erigeron*. In the *So moku*, XVII, 12, 蓬 is *Conyza ambigua*, DC., a composite plant. *Ibidem*, IV, 43, 雌蓬 is *Salzola asparagoides*, Miq. The plant represented in *Ch.*, XII, 40, under the same Chinese name *kien p'eng* seems to be a *Salzolucca*. *Kien* means Soda. Another subsolaceous plant is figured in *Ch.*, XII, 42, under the name 沙蓬 *sha p'eng* (*sha*=sand) a plant of the desert. It is perhaps *Agriophyllum*.

Two passages in the *Li ki* refer to arrows made of the *p'eng*. LEGGE translates wild *Rubus* or Raspberry.

I, 472:—When a son and heir to the ruler of a State was born . . . the master of the archers took a bow of mulberry wood and six arrows of the wild *Rubus* (*p'eng*), and shot towards heaven, earth and the four cardinal points. After this the nurse received the child. Nearly the same is related, II, 452.

LEGGE in translating *p'eng* by *Rubus*, has evidently in view the 蓬蘽 *p'eng lei* [*P.*, XVIIIa, 7]. It is figured in *Ch.* [XXII, 7] and is indeed a *Rubus*. In Japan the same Chinese name is applied to *R. cratægifolius*, Bge, and *R. pectinellus*, Maxim. [See *Phon zo*, XXV, 7, 8.] But whether the *p'eng* in the above passages of the *Li ki* means a raspberry bush is very doubtful.

V. supra, 15. *Jap.*, 886, *Erigeron Kamtschaticum*, DC., 蓬.

1977, *Salzola aspar.*, 鹹蓬.

About *Rubus* [*v. supra*, 133].

Jap., 1932, *Rubus Buergeri*, Miq., 寒莓.

„ 1935, „ *incisus*, Thbg., 惡鈎子.

„ 1938, „ *parvifolius*, L., 藕田蓐.

„ 1943, „ *rosifolius*, Sm., var. *coronarius*, Sims, 茶藨花.

„ 1947, „ *Thunbergii*, S. & Z., 蓬蘽.

Jap., 1948, *Rubus Tokkura*, Sieb., 覆盆子.

" 967, *Fragaria indica*, Andr., 蛇莓.

437.—**蕒** *Su* or, as the *Rh ya* [118] calls it, 牛脣 *niu shun*, oxlip.

Shi king, 165 :—There along the bend of the Hwun (汾 *Fen*, a river in Shansi) they gather the oxlips (*su*).

MAO calls it 水鬍 *shui si*, as also does the *Shuo wen*.

LU KI :—The *su* is now called 澤 蒿 *tse si*. Its leaves resemble those of the 車前 *ch'e ts'ien* (*Plantago*). They are large, and also in taste they resemble that plant. In 徐州 *Suchou*, in the district of 廣陵 *Kuang ling* (Northern Kiangsu) the people use them for food.

The plant intended by LU KI is *Alisma plantago*, L., mentioned under its present name in the *Rh ya* [*r. supra*, 95]. It is therefore improbable that the *su* or *niu shun* [*Rh ya*, 118] should denote the same plant.

Jap., 96, *Alisma Plantago*, L., 水澤瀉.

438.—**耬耳** *K'uan rh*. This is the name of a plant which LEGGE calls the mouse's ear, and which is the title of an ode in the *Shi king* [8] :—

I was gathering and gathering the mouse's ear.

MAO calls it 耬耳 *ling rh*, as does also the *Rh ya* [184].

LU KI :—The *k'uan rh*, called also 耬耳 *si rh* and 胡耬 *ku si*. The leaves are of a light green colour and resemble those of the 胡荽 *hu sui* (*Coriandrum sativum*). It has a debile stem, white flowers. The plant is eaten cooked, it is mucilaginous. In the 4th month it is in fruit. The fruit resembles a lady's ear-pendant, wherefore the plant is also called 耳瑣草 *rh tang ts'ao* (ear-pendants herb). The people of 幽州 *Yu chou* (Northern Ch'ili) call it 耬耳 *tsio rh*.

LEGGE makes CHU HI say that the leaves of the *k'uan rh* are like a mouse's ear and that it grows in bunchy patches. But CHU does not refer to the leaves, he only says it

resembles a mouse's ear, and I think he had rather in view the fruit of the plant. LEGGE quotes the *Rh ya i*, where it is stated that the fruit of the *kuan rh* is like a mouse's ear and prickly, sticking to people's clothes.

P., XV, 64, *si rh*. LI SHI-CHEN says the fruit resembles the mulberry and is prickly. The *Pen ts'ao king* calls the plant 蒼耳 *ts'ang rh*. This is now the vulgar name for the *Xanthium strumarium*, L., a common weed throughout China. It has a small, oblong, prickly fruit. It is represented in the *Kiu huang* [LII, 22] and in *Ch.* [XI, 50].

Amoen. exot., 892 :—蒼耳 *soou' vulgo namoue*. *Xanthium Lappa minor*. *So moku*, XX, 25 :—Same Chinese name. *Xanthium strumarium*. But under 卷耳 the *So moku* [VIII, 71] depicts *Cerastium glutinosum*, Fries.

439.—茅膏 *Fou i*. Title of an ode in the *Shi king* and name of a plant which LEGGE correctly identifies with the plantain (*Plantago*).

Shi king, 14 :—Song of the plantain-gatherers. We gather the plantain, now we pluck the ears, now we rub out the seeds, now we place the seeds in our skirts. LEGGE adds :—From the preface (of the *Shi*) it appears that these seeds were thought to be favourable to child-bearing. They are still thought in China to be helpful in difficult labours.

The *Rh ya* [200] gives as a synonym for *fou i* 車前 *ch'e ts'ien*, which is still the common Chinese name for *Plantago*.

LU KI :—*Fou i*, other names *ma si*, *ch'e ts'ien* [as in the *Rh ya*], 當道 *tang tao*. It grows in the footmarks of cattle, whence the names *ch'e ts'ien* (ahead of the cart) and *tang tao* (this answers to the German name for *Plantago*—Wegerich). The seeds are used as a medicine, especially in difficult parturition. The people of 幽州 *Yu chon* (Northern Chili) call it 牛舌草 *nu she ts'ao* (ox tongue). But this name

rather refers to *Rumex*). The plant is eaten boiled; it is very mucilaginous.

P., XVI, 54:—*Ch'e ts'ien*. Under the same name *Plantago* is figured in the *Kiu huang* [XLVI, 11] and *Ch.* [XI, 28].

Amæn. exot., 912, 車前 *sjaden*, vulgo *obacko*, *Plantago major vulgaris latifolia*. *So moku*, II, 27, same Chinese name, *Plantago major* var. *asiatica*. The plantain of Northern China belongs to the same variety. There is at Peking also the var. *japonica*, which is characterised by its enormous size; the stalks with the spike several feet long; large leaves.

Jap., 1647, *Plantago asiatica*, L., 車前.

440.—*蓮 Chu*, LEGGE says it is the dock (*Rumex*) and, translating its common Chinese name, calls it sheep's foot.

Shi king, 302:—I travelled through the country gathering the sheep's foot.

MAO explains *chu* by 惡菜 (bad vegetable). CHENG HŪAN calls it 牛蒡 *niu t'ui*. [See the *Rh ya*, 117.]

LU KI:—*Chu* or *niu t'ui*. The people of 揚州 *Yang chou* (Anhui, Chekiang) call it 羊蹄 *yang ti* (sheep's foot). It is (the root is meant, it seems) like the 蘆服 *lu fu* [the Radish, see the *Rh ya*, 39]. The stem is of a red colour. The plant may be eaten cooked. It is mucilaginous and wholesome. In *Yu chou* (Northern Chili) they call it *chu*.

P., XIX, 4:—*Yang ti*, also called 牛舌 *niu she* (ox-tongue), which latter is the common name at Peking for *Rumex japonicus*, Meissn., and *R. crispus*, L. The first cultivated as a vegetable.

The rude drawings of the *yang ti* in the *Kiu huang* [LII, 21] and *Ch.* [XVIII, 8] may be intended for *Rumex*. HENRY, l. c., 308:—In Hupei *niu she t'ou* is *Rumex acetosa*, L.

Amæn. exot., 911:—羊蹄 *jo tei*, communiter *si*. *Thlaspi majus*, foliis *Lapathi*, caulibus in spicas excurrentibus,

capsulis Bursæ pastoris, intermixtis foliolis, confertas. I do not know what KÆMPFER means.

SIEBOLD [*Syn. plant. æcon. jap.*, 108] refers the above Chinese name to *Rumex crispus*, L., japonice *gisi gisi*. Remedium agricolis in exanthematibus.

So moku, VII, 27, same Chinese name, *R. japonicus*, Meissn.

Jap., 1953, *Rumex aquaticus*, L., var. *japonicus*, Meissn., 土大黃.

" 1954, " *japonicus*, Meissn., 羊蹄.

441.—Another plant, which may be a *Rumex*, is mentioned in the *Shi king* under the name of 莫 *mo*. LEGGE thinks that it is the sorrel, *Rumex acetosa*, but notices that in the Japanese plates it appears as *Equisetum* (horse tail) which is evidently a mistake.

Shi king, 164 :—There in the oozy grounds of the Hwun (汾 Fen, a river in Shansi) they gather the sorrel (*mo*). MAO explains that *mo* is a vegetable.

LU KI :—The stem of the *mo* is as thick as a goose-quill, of a red colour, and giving out at every joint leaves like the willow, thick and long, covered with hairy prickles. It is of a sour taste and when young can be boiled into soup. It is also eaten raw. Its common name in China is 酸迷 *suan mi*. In 冀州 Ki chou (Chili) it is called 乾絳 *kan kiang* (dry red), in 河汾 Ho Fen (Shansi) it is 莫 *mo*.

The above account would agree in a general way with Sorrel, but that plant is glabrous.

P. [XIX, 7] describes under the name 酸模 *suan mo* (sour *mo*) a plant with a sour taste, resembling the *yang ti* [see the preceding]. Some authors identify it with the plant [Rh ya, 105]. A rude drawing of the plant, *Ch.*, XVIII, 9.

SIEBOLD, *Syn. plant. æcon. jap.*, 109, 酸模 *suiwa*, *Rumex persicarioides* (i.e., *R. japonicus*, Meissn.). *Herba edulis*. *So moku*, VII, 29, 30, same Chinese name, *R. acetosa*, L.

442.—**藋** *Fu*. LEGGE, relying on the Japanese plates, identifies the *fu* of the *Shi king* with pokeweed, *Phytolacca decandra*, but that is a mistake. Pokeweed (*Ph. acinosa*) is **商陸** *shang lu*. [See the *Rh ya*, 112].

Shi king, 303 :—I travelled through the country gathering the pokeweed. MAO explains *fu* by **惡菜** (bad vegetable). The *fu* is mentioned in the *Rh ya* [51].

LU KI :—*Fu*. In Yu chou (Chili) it is called **燕窩** *yen fu*. It has a white root. The people eat it baked in hot ashes, especially in years of scarcity, when it appeases hunger. In the time of the Han dynasty it was used in certain sacrifices. There are two kinds. One of them, with small leaves and red flowers, has an offensive smell.

P., XVIIIa, 27, **旋花** *sūan hua*, also **旋藋** *sūan fu*, a creeping plant with an edible root; root and flowers used in medicine. Kiu huang, LI, 10, *Ch.*, XXII, 13, *sūan hua*, also **燕窩** *yen fu*, **藋子根** *fu tsz' ken* (*fu* root). The plants figured are *Convolvulus* or *Calystegia*. HENRY, l. c., 479 :—The character *sūan* means to wind about, *Convolvulus*. At Peking it is *Calystegia sepium*, R. Br. (*Convolvulus sepium*, L.)

So moku, IV, 22, **旋花** *Calystegia japonica*, Miq.

Jap., 662, *Convolvulus japonicus*, Thbg., **旋花**.

443.—**藋** *Yao*. LEGGE calls it the small grass or *Polygala japonica*.

Shi king, 229 ["Life in Pin"] :—In the fourth month the small grass (*yao*) is in seed.

MAO explains *yao* by a plant. *Rh ya*, 194, *yao yao* or *ki yān*.

LEGGE says :—It is described as like hemp, with flowers of a yellowish red, and a sharp pointed leaf. Among other names given to it is that of *si ts'ao* (small grass). LEGGE translates evidently KUO Po's commentary on the *Rh ya*.

The passage in question reads 似麻黃赤華葉莖而黃其上謂之小草, which I understand to mean: it resembles the *ma huang* (*Ephedra*), has red flowers, pointed leaves. Its top is called small plant. KUO P'ao says that the *yao yao* of the *Rh ya* is the 遠志 *yüan chi*. This latter name at Peking is applied to *Polygala tenuifolia*, Willd., and *P. sibirica*, L. P., XIIb, 21, Drawings, *Kiu huang*, LIII, 5, Ch. VII, 13.

So moku, XIII, 8, 遠志, *Polygala japonica*, Hout. This latter is also found in China.

The *Kuang ya* identifies the *yao* of the *Rh ya* with the 莠 *yu*, *Setaria* [v. *infra*, 463].

Jap., 1680, *Polygala sibirica*, L., 遠志.

444.—種 *T'ui* or *chui*. Correctly identified by LEGGE with motherwort, *Leonurus*. [See the *Rh ya*, 25].

Shi king, 116 :—In the valleys grows the motherwort, but scorched is it in the drier places.

LU KI :—The *t'ui* plant has a square stem, white flowers which appear between the nodes (he means perhaps to say that the flowers are arranged in a whorl on the nodes. The flowers of *Leonurus* are red). Some ancient authors call it 蒼蘭 *an la* (this is an *Artemisia*), others 益母 *i mu* (mother's help). The *Pen ts'ao* terms it 茺蔚 *ch'ung wei*. LIU HIN [1st century B.C.] calls it 臭穢 *ch'ou wei* (stinking weed).

P., XV, 24, *ch'ung wei*. Ch. XI, 25. The drawing under *ch'ung wei* represents *Leonurus sibiricus*, L.

So moku, XI, 41, 益母草 or 茺蔚, *Leonurus sibiricus*.

Jap., 1243, *Leonurus macranthus*, Max., 整葉.

" 1244, " *sibiricus*, L., 茺蔚益母草.

445.—葉 *Lai*. This character is met with in the *Shi king* and in the *Chou li*. LEGGE translates it by orach (*Atriplex*), also by "useless plants."

Shi king, 272 :—In the hills of the north (in Chou) is the *lai*. 323, 365 :—The country is overgrown with *lai* (useless plants).

LU KI :—*Lai* is the name of a weed. It is also called *li* [see the next]. The leaves may be eaten. The people of 兗州 Yen chou (South-western Shantung) eat them cooked.

In the *Chou li* we have the term 田萊 *t'ien lai* (a fallow field). WILLIAMS [*Diet.*, 499] thinks that *lai* is the sow-thistle (*Sonchus*). But it is more probable that it is a synonym for *li* (*Chenopodium*). [See the next.]

446.—藜 *Li*. Mentioned in the *Li ki*. LEGGE translates it by orach (*Atriplex*). [See the quotation in 431.]

P., XXVII, 28, *li*. It is the same as the 萊 *lai* of the *Shi king*, as LI SHI-CHEN believes. It is also called 紅心灰藜 *hung sin hui t'iao*. *Chenopodium* with a red heart. In ancient times they called this plant 藜藿 *li ho*. This term is used in the *Huai nan tzu* and in CHUANG TSZ'. The young leaves may be eaten.

So moku, IV, 40, and Phon zo, L, 7, 藜 or 藿 *Chenopodium album*, L.

In the above name *hui t'iao*, the character *t'iao* is a general name for *Chenopodium* [*v. Rh ya*, 11]; *hui* means ashes, and refers to the white meal with which the leaves of some species are covered. The young shoots and spikes often assume a reddish colour.

FA HIEN, when he returned, in A.D. 414, by sea from his long journey to the Buddhist countries, landed in the Province of Shantung. In the *Fo kuo ki* [see BEAL'S *Si yu ki*, Introduction, LXXXII] it is stated that on seeing the 藜藿菜 *li ho* vegetable again, the traveller was confident that this was indeed the land of Han (China). I have no doubt that the first two characters, not

found in *K.D.*, are intended for 藜 *li ho*, and that FA HIEN saw the *Chenopodium album*, a very common weed in Northern China.

Jap., 574, *Chenopodium album*, L., 藜.

" 575, " *ambrosioides*, L., 土荆芥.

Compare *Jap.*, 323, *Basella rubra*, L., 落葵, *supra*, 148.

" 337, *Beta vulgaris*, L., 菠菜.

" 2117, *Spinacia oleracea*, Mill., 菠薐菜.

447.—*芩* *K'in*. LEGGE, on the authority of WILLIAMS [*Diet.*, 403], says that the *k'in* was a *Salsola*, but that from the Japanese plates it appears to be a *Panic* grass.

Shi king, 246 :—With pleased sounds the deer call to one another, eating the *salsola* of the fields.

LU KI :—The stem of the *k'in* plant is as thick as a hair-pin; the leaves are like bamboo-leaves. It creeps on the ground in marshes and low grounds impregnated with salt. Cattle are very fond of it.

It is unknown what plant the *k'in* was. The name 黄芩 *huang k'in* in China, as well as in Japan, is applied to *Scutellaria*.

TATARINOV [*Catal. med. sin.*, 10] :—The drug *huang k'in* is *Rad. Scutellariae viscidulae*, Bge. (probably only a variety of *Sc. macrantha*). *P.*, XIII, 12. *Ch.*, VII, 36.

So moku, XI, 48, 黄芩, *Sc. macrantha*, Fisch.

E., 153, family 黄芩. The bad figure is a copy of *S.*, II, 31.

Jap., 2037, *Scutellaria macrantha*, Fisch., 黄芩.

" 2036, " *indica*, L., var. *jap.*, Fr. & S., 丹参.

C., 513. *Sm.*, 194, *Scutellaria viscidula*, Bge.

H., 141, *Berberis nepalensis*, Spr., sometimes termed *huang lien*.

Jap., 334, *Berberis vulgaris*, L., 大黃連.

448.—*苕* *T'iao*. This character in the *Shi king* is applied, as the Chinese commentators agree, to two different plants. One of them, according to LEGGE, who relies on the Japanese plates, is a pea or *Lathyrus maritimus*,

Shi king, 211 :—On the embankments are magpie nests. On the height grows the beautiful pea (*t'iao*).

MAO explains it only by name of a plant. [Compare the *Rh ya*, 87.]

LU KI :—The *t'iao* is also called 茗饒 *t'iao jao*. The people of 幽州 Yu chou (Northern Chili) call it 翹饒 *k'iao jao*. The stem of this plant is like that of the 勞豆 *lao tou* (a kind of cultivated bean), but more slender. The leaves resemble those of the *tsi li* (*Tribulus terrestris*, see 427). Stem and leaves can be eaten raw, like the leaves of the 小豆 *siao tou* (*Phaseolus Mungo*).

P., XXVII, 27. *Ch.*, IV, 22, *k'iao jao*. Rude figure. Leguminous plant.

The plant represented in the *So moku* [XIII, 47] under 翹橋, is *Vicia hirsuta*, Koch, but in the *P'ho zo* [XLIX, 32] *Lathyrus maritimus*, Bigel.

The *t'iao* in the *Shi king* [423] refers, according to LEGGE, [on the authority of the Japanese plates] to *Bignonia grandiflora*.

The flowers of the *Bignonia* (*t'iao*) are of a deep yellow ; and, farther on :—The flowers of the *Bignonia* (*t'iao*) are gone, there are only its leaves, all green.

CHENG HŪAN says :—The *t'iao* here is the same as 陵苕華 *ling t'iao hua*. The flowers are numerous and of a purple colour. *Rh ya*, 164, 165.

LU KI :—The *t'iao* is also called 陵時 *ling shi* and 鼠尾 *shu wei* (rat's tail). It resembles the 王芻 *wang ch'u* [v. *supra*, 10] and grows in low damp places. The flowers appear in great profusion in the 7th and 8th months, are of a purple colour, like those of the 紫草 *tsz' ts'ao* (*Lithospermum erythrorhizon*). They afford a black dye and are used to dye the hair.

This account does not agree with *Bignonia*. LU KI confounds several plants, it seems. But the *ling t'iao* or *ling shi*

is *Bignonia grandiflora* or *Tecoma grandiflora*, Del., a beautiful climbing plant with large orange-coloured flowers, common in Chinese gardens. [For further particulars, v. *supra*, 165.]

V. note to 354, *Vicia hirsuta*, Koch. The figure to P., XXVII, 27, looks more like *Lathyrus*.

V. *supra*, 164, *Tecoma*.

449.—The plants *niao* and *nā lo*, mentioned together in the *Shi*, are correctly identified by LEGGE with the mistletoe and the dodder.

Shi king, 390:—They are your brethren, all assembled, they are like the mistletoe (*niao*) and the dodder (*nā lo*) growing over the pine and the cypress.

MAO explains the 蔦 *niao* (pronounced also *tiao*) by 寄生 *ki sheng* which is a name for the mistletoe. *Ki* means "to lodge (on trees)"; *sheng* "to grow." CHENG HŪAN refers to the *Rh ya* [262].

LU KI likewise says the *niao* is the same as the *ki sheng*, but the description he gives of the plant is not correct:—Leaves resembling those of the 當盧 *tang lu* (*Phytolacca*), fruit like the 覆盆子 *fu p'en tsz'* (*Rubus*), of a dark red colour and a pleasant sweet taste.

The account given of the plant in question in P. [XXXVII, 13–15], where ancient authors are quoted, leaves no doubt that by *ki sheng* a *Viscum* or *Loranthus* is meant. It is said there that the plant grows as a parasite among the branches of various trees (mulberry tree, pine tree, poplar, liquidambar) and that its root is imbedded in the substance of the branches. Roundish, thick leaves, white flowers, red berries like small peas. Ch., XXXIII, 35, 桑上寄生 *sang shang ki sheng* (*ki sheng* on a mulberry tree). The rude drawing seems to represent a *Loranthus*. HENRY, l.c., 392:—The above Chinese name is applied in Hupei to *Loranthus jadoriki*, Sieb., and other species.

Anwen, exot., 785 :—寄生 *ksei*, vulgo *jodoriki*. *Viscum baccis rubentibus*. Description of the plant. According to MAXIMOWICZ this is *Loranthus Kämpferi*, growing on pine trees in Japan.

Phon zo, XCIII, 8, 9, 桑寄生, *Viscum album*, L. It grows on mulberry trees.

But the character 葛¹⁰ in *Anwen, exot.* [887] is referred to *Hedera helix*.

E., 180, family 桑上寄生. Figure of a *Loranthus*.

C., 58. *H.*, 35. *Sm.*, 93, 152.

450.—As to the 女蘿 *nā lo*, MAO explains it by 菟絲 *t'u sz'* and 松蘿 *sung lo*. CHENG HĒAN says it is called *t'u sz'* when growing on herbaceous plants and *sung lo* when growing on trees. I understand that he means by *t'u sz'* and *sung lo* different plants, not one plant with two names.

The *sung lo* in *P.*, XXXVII, 15, is *Viscum*. *Phon zo*, XCIII, 10, 11, 12, 松蘿槎, *Viscum album*, L., and *Loranthus Kämpferi*.

The *Rh yu* [131] says that *nā lo* or *t'ang meng* [see the next] is the same as *t'u sz'*.

LU KI :—The *nā lo* is now called *t'u sz'* (rabbit's silk). It twines around herbaceous plants, like gold wire. It is yellow or of a red colour and used in medicine. It is not to be confounded with the *sung lo*, which grows on trees and is of a green colour.

T'u sz' or rabbit's silk is the common Chinese name for dodder, *Cuscuta*. Several species of it are known in China. The most common in the neighborhood of Peking

¹⁰ *Ch.*, XXVII, 6 figures under the name 葛藤松 *niao lo sung* the *Ipomœa quamoclit*, L. This beautiful climbing convolvulaceous plant with pinnate leaves, the pinnae being filiform, and dark red flowers, is much cultivated at Peking. Popular name *mī lo sung*.

So moku, IV, 21, 葛藤, *Ipomœa quamoclit*. [*Jap.*, 1158.]

are *C. chinensis*, Lam. [the whole plant is yellow], and *C. japonica*, Choisy. [which is of a purple colour].

P., XVIII, 1, *t'u sz'*. *Ch.*, XXII, 1-3.

Phon zo, XXV, 2, *Cuscuta japonica*.

V. supra, 131.

451.—唐 *T'ang*. This character occurs once in the *Shi king*. LEGGE says the Japanese plates leave no doubt as to the plant being the dodder (*Cuscuta*).

Shi king, 78:—I am going to gather the dodder (*t'ang*) in the fields of 洮 *Mei* (north of Honan).

In the *Rh ya* [131] we have 唐蒙 *t'ang meng*, a synonym for *nā lo* and *t'u sz'* (*Cuscuta*). LEGGE says that MAO calls *t'ang* improperly the 蒙 *meng* vegetable, and that the dodder plant is not eaten as food in China. The *t'u sz'* is, however, mentioned in the *Kin huan* [XIX, 9] among the edible plants eaten in time of scarcity. The seed is used in medicine.

452.—葛 *Ko lei*. This plant is thrice mentioned in the *Shi king*. LEGGE calls it dolichos creeper. *Lei*, according to the *Kuang ya*, has the same meaning as 藤 *t'eng*, *liana* [*v. supra*, 255].

Shi king, 10:—In the south are the trees with curved drooping branches, with the dolichos creepers clinging to them. 119:—*Ko lei*, title of an ode. Thickly they spread about, the dolichos creepers on the borders of the 河 *Ho* (Yellow River). 446:—Luxuriant are the dolichos creepers, clinging to the branches and stems.

LU KI:—The *ko lei* is also called 巨荭 *kū ku*. It resembles the 蕪荑 *yen yū* (a wild vine with edible fruit). It is a creeper with whitish leaves resembling those of the 艾 *ai* (*Artemisia vulgaris*). Its fruit is edible, but sour, not very pleasant. In 幽州 *Yu chou* (Northern Chili) they call this plant 葍 *t'ui* (*chui*) *lei*.

T'AO HUNG-KING calls this plant 千歲蔓, *ts'ien sui lei* (a thousand years liana). Under this name it is spoken of in *P.*, XVIIIb, 42. It is figured in *Ch.*, XXII, 50. It seems to be a *Vitis*.

Phon zo, XXXII, 3, 千歲蔓, *Vitis flexuosa*, THBG.

453.—**蛟** *Lien*. LEGGE says, regarding this plant, mentioned in the *Shi king*:—*Convolvulus*, probably the *Ipomoea pentadactylis*, a creeper found abundantly in Hongkong, and called by the common people *wu chau lung*, the five-clawed dragon. *Shi king*, 186:—The convolvulus spreads all over the waste.

According to the *Shuo wen*, this plant is the same as the 白薇 *pai lien* (white lien) of the *Pen ts'ao king*.

LU KI:—The *lien* resembles the *kua lou* (in its leaves), but the leaves are smaller and more abundant (*kua lou* is *Trichosanthes*, v. *supra*, 23). The fruit is black, like the 燕萸 *yen yü* (a vine with edible fruit), not edible. In 幽州 *Yu chon* (Northern Ch'ili) they call it 烏服 *wu fu*. The boiled leaves and stems are employed for feeding cattle, to remove fever.

P. XVIIb, 6, *pai lien*. The large white root of the plant is used as a medicine. *Ch.*, XXII, 46. Bad drawing.

So moku, IV, 17, 白薇, *Vitis serianafolia*, Bge. This is a common plant in the mountains of North China. Its leaves are palmatisect, decomposed.

V. supra, 182. *Jap.*, 2373, *Vitis serianafolia*, Bge., 白薇 and 我抱姪.

Jap., 2374, *Vitis vinifera*, L., 葡萄.

" 2368, " *heterophylla*, Thbg., 蛇葡萄.

" 2369, " *inconstans*, Miq., 地錦. *V. supra*, 182.

454.—**鵒** *I or ni*. *Shi king*, 211. LEGGE calls it the Medallion plant. The character is properly the name of the medallion pheasant, *Tragopan satyrus* [LEGGE].

The *Rh ya* [26] writes the character with the radical "plants," and calls it ribbon plant.

WILLIAMS [*Dict.*, 1098] thinks that it may be a species of *Phalaris* or canary grass. I may observe that our European ribbon grass, the *Phalaris arundinacea*, L., is a common plant in North China. [Compare *infra*, 461.]

455.—There appear in the Classics a number of Chinese names of plants referring evidently to reeds, rushes, sedges and the like. Only a few of these terms are still in use; the greater part have disappeared, probably a long time ago, from the spoken language.

We have first the 葦 *wei* and the 蘆 *lu*, both names applied in Northern China to the common reed *Arundo phragmites*, L. Three or four more names for reeds, now obsolete, occurring in the odes of the *Shi king*, are said by some of the ancient commentators to refer to the various stages in the process of growth of the common reed or others. I quote the passages where these names are mentioned:—

Shi king, 104:—Who says that the 河 *Ho* (Yellow River) is wide? With a bundle of reeds (葦 *wei*) I can cross it. 228 ["Life in Pin"]:—In the eighth month are the sedges (茝 *huan*) and reeds (葦 *wei*). 337:—Deep looks the pool and abundantly grow the rushes (茝 *huan*) and reeds (葦 *wei*). 472:—In thick patches are those rushes (葦 *wei*) by the way. Let not the cattle and sheep trample them.

Hsia Calendar, 80 [七月蒹葭]. DOUGLAS translates:—In the seventh month flourish the creeping plants and rushes. The fourth character, *kuan*, which DOUGLAS renders by creeping plants, is evidently a mistake for 茝 *huan*. See the corresponding sentence [above quoted] *Shi king*, 228 ["Life in Pin."]

Li ki, I, 277 [*Yue ling*]:—Third month of summer. Orders are given to the superintendent of the meers to collect and send in the rushes available for use (材葦).

Doctrine of the Mean, 269:—Their government might be called an easily growing rush (蒲葦 *p'u lu*). LEGGE says *lu* is the same as *wei* [*c. supra*], which, as well as *p'u*, is the name of various rushes or sedges. Regarding *p'u* see 375.

Shi king, 36:—Strong and abundant grow the rushes (葦 *kia*).

96:—

The waters of the 河 Ho (Yellow River), wide and deep,
Flow northward in majestic course;
The nets are dropt into them with a plashing sound,
Among shoals and sturgeon, large and small,
While the rushes (葦 *kia*) and sedges (菱 *'an*) are rank about.

195:—The reeds (葦 *kien*) and rushes (葦 *kia*) are deeply green. 121:—His robes of rank glitter like the young sedge (菱 *'an*).

Regarding the above terms we find the following explanations in the *Rh ya*, the *Shuo wen* and the ancient commentaries:—

葦 *lu*, according to the *Rh ya* [213] is the same as 葦 *kia*, and [in 211] the *Rh ya* identifies *kia* with 華 *kua* (flower). MAO says *kia* is the same as 葦 *wei*, and LI SUN that the *wei* when it begins to grow is called *kia*. *Shuo wen*:—*Kia* is a name for the *wei* before it has flowered, and *wei* is explained by 大 *kia* (the great *kia*). *Rh ya*, 210:—*Wei*, same as 醜芳 *ch'ou 'iao*. *Shuo wen*:—芳 *'iao*, same as the *wei* in flower. HING PING explains that *wei* is a term applied to the *lu* when it is full grown, in grain.

From the above quotations it appears that the names *lu* and *wei* in ancient times were referred to the same plant as nowadays. *Lu* and *wei* are common names in Northern

China for the *Phragmites communis*, Trin., (*Arundo phragmites*, L.) the common reed. In Hupei, according to HENRY [*l.c.*, 253], 蘆柴 *lu ch'ai* is *Phragmites Roxburghii*, Kth. The character *ch'ai* means faggots.

蘆 *Kien*, according to LEGGE, a kind of rush or sedge. *Rh ya*, 212, same as 蘆 *lien*. Kuo P'o says it resembles the 荏 *huan*. The *Shuo wen* explains *kien* by *huan* which has not yet flowered.

The character 荏 *huan* with the meaning of reed is not found in the *Rh ya*. But we have there [25] the same character pronounced *kia* or *ch'ai* and applied to *Leonurus*. The *Shuo wen* writes this character 荏 *huan* and identifies it with 荏 *wan* [see the next].

WILLIAMS [*Dict.*, 247] says 荏 and 莞 *huan* may denote the same plant, but this is probably rather a sort of *Juncus* or *Cyperus*, as it has no blossoms. LEGGE translates 莞 *huan* in the *Shi king* by rush mats. [305] :—The rush mat (*huan*) below and that of fine bamboo above.

The *Shuo wen* explains this character by :—A plant fit for making mats. CHENG HUAN says, regarding the same character :—It is the name of a plant which grows in a bushy manner, in the water. It has a round stem. In Kiangnan mats are woven of it. It resembles a small 蒲 *p'u*, but has no fruit. [Compare the *Rh ya*, 98.] According to Kuo P'o this character is to be pronounced *kuan*. [See also the *Rh ya*, 16.] The *Shuo wen* states that the plant 蒲 *liu* is also a kind of *huan*. [V. *supra*, 176.]

The 蔞 *t'an* in the *Rh ya* [214] is identified with the 蔞 *wan*. The young sprouts are called 蘆 *k'uan*. MAO says the *t'an* is also called 雛 *chui* (properly a pigeon). It is a name for the young sprouts of the 蘆 *lu*. HING PING says that 荻 *ti* is another name for it,

LU KI gives the following account of the above-mentioned reeds:—The 蘆 *kien* grows in water. Cattle thrive on it when it is in seed, and get fat and strong. The people of 青州 Tsing chou and 徐州 Sü chou (Northern Shantung and Northern Kiangsu) call it *kien*, and in 兗州 Yen chon (South-western Shantung) and Liaotung they use the same name. The 葭 *kia* is the same as 蘆 *lu*. The 茭 *t'an* or 藎 *wan* is also called 荻 *ti*. In autumn, when the plant is getting hard and its seeds ripen the people term it 荻 *huan*. Its heart (marrow) is pulled out from below. The root is of the size of a goose's quill, tapering. The people of Yang chon (Chekiang, Anhui) call it *ma wei* (horse's tail).

KUNG YING-TA is of opinion that the above classical names of plants refer to three kinds of reed. He says one of these plants is called *kia* when it begins to grow, *lu* when it flowers, and *wei* when it is full grown and in seed (this is the common reed, *Phragmites communis*). Another plant is called *t'an* when it begins to grow, *t'an* when it increases in growth, and *huan* when it is in seed. The third plant is the *kien*.

The common reed, *Phragmites communis*, is treated of in P., XV, 76, *lu*, *wei*, *kia*. A good drawing of the plant is found in Ch., XIV, 10. The Kiu huang, LIII, 13, figures under the name 蘆筍 *lu sun* (*lu* sprouts) a young plant of this reed. The sprouts of the *Phragmites communis* are eaten in China like those of the *p'u* or *Typha*, and are also employed in medicine. At Peking coarse mats are woven of the split reed.

Arundo exot., 900, 葦 *I*, vulgo *assi*, *jussi*. *Arundo palustris vulgaris*, foliis latioribus, calamis firmis, ex quibus puto penicilla scriptoria confici. Phon zo, XVI, 9-11, 蘆, *Phragmites communis*.

LI SHI-CHEN [in *P.*, *l.c.*], in accordance with K'UNG YING-TA'S classification of the reeds, distinguishes three kinds, viz. :—

- 1.—Culm more than 10 feet high, hollow inside ; skin thin, of a whitish colour. It is called *kia*, *wei* and *lu*. This is the common reed already spoken of. [Comp. HENRY, *l.c.*, 253.]
- 2.—Culm shorter and smaller than that of the *wei* or *lu*, hollow inside ; skin thick, of a dark green colour. This is called *t'an*, *wan*, 荻 *ti* or 荻 *huan*.
- 3.—The *kien*, a small reed with a solid stem (not hollow inside).

I am not prepared to say what reeds or reed-like plants were denoted by *ti*, alias *t'an*, *wan*, and by *kien* in the Classics. The name *ti* is still used in China for a peculiar kind of small reed. [Compare an article by a contributor to *Notes and Queries on China and Japan*, 1869, p. 97, on the "Reeds of the Yang tsz'." The author of this interesting paper states, from his own observation it seems, that the immense reeds grown along the banks of the Great River are of two kinds, one called the *lu*, the other the *ti*. The former is said to grow towards the mouth of the river, near Nanking and Chinkiang, the latter higher up, in the vicinity of Anking, where there is a river known as the 荻江 *Ti kiang*, after the reeds produced along its banks. Outwardly there is little difference in the appearance of these reeds ; the chief distinction is that the *lu* are hollow, and the *ti* pithy inside. Perhaps the *ti* is a plant well known to botanists, but which has not yet been identified with the Chinese name, which is sometimes also written 蔴 *ti*.

The *Phon zo* figures [XVI, 11, 13] under 荻 two gramineous plants, not identified by FRANCHET. In SIEBOLD'S *Syn. plant. japon.* [39] 荻 appears as one of the Chinese names

applied to *Erianthus japonicus* [c. *supra*, 188]. The *So moku* [XVI, 35] gives 荻 as the Chinese name for *Gnaphalium margaritaceum*, L. But this may be a mistake, for HOFFM. & SCHULTES [50] apply the character 荻 [pronounced *ts'ia* in Chinese, W.D., 1001] to the same plant.

With respect to the 莞 *huan*, a rush, of which in ancient times mats were made, I may notice that in HOFFM. & SCHULTES [308] *Juncus effusus*, L., appears with the Chinese names 燈心草 (lamp-wick grass), 席草 (grass for making mats) and 莞. The pith of this rush is largely used in China for lamp-wicks. Mats are also made of *Juncus effusus*, as HENRY [*l.c.*, 450] reports. [See also *P.*, XV, 91, and *Ch.* XIV, 37.]

Very fine mats, said to be manufactured in the interior of China, are sold at Peking under the name of 龍鬚席 *lung sū si* (dragon's whisker mats). The *lung sū* plant, also called 石龍芻 *shī lung ch'u* and 懸莞 *hūan huan*, is spoken of in *P.* [XV, 90] as a plant of which mats are woven. [Comp. *Rh ya*, 16, 176; *Ch.*, XI, 39.]

Phon zo, XVI, 21, 石龍芻, figured as a fine-leaved grass.

In an interesting article on the sources of China matting, published in the *Journal of Botany*, 1879, p. 99, the late Dr. HAXCE noticed the *Lepironia mucronata*, Rich., (*Cyperacea*) and the *Cyperus tegetiformis*, Roxbg., as furnishing the material for mats at Canton.

SIEBOLD, *Syn plant. acon. jap.*, 42:—*Zizania palustris*, *kojosi*, 蘆. Culmi pro munimento ad imbres adhibentur. SIEBOLD'S *Zizania palustris* is *Hydropirum latifolium*, Griseb. [c. *supra*, 350].

V. supra, 210. *Jap.*, 1610, *Phragmites communis*, Trin., 蘆.

Phragmites communis, Trin., var. *longivalvis*, Miq., 荻蘆竹.

" 1611, *Phragmites japonica*, Steud., 荳.

Jap., 1198, *Juncus balticus*, Deth., 石龍菊. *V. supra*, 16.

" 1335, *Luzula campestris*, DC., 地楊梅.

Cyperus [*v. supra*, 97].

Several kinds of *Polypodium* are called 韋, *v.*

Jap., 1722, *ff.*

456.—*莠 Lie*. A plant mentioned in the *Li ki*, the *Chou li* and the *Rh ya*. LEGGE calls it a reed. It was employed by sorcerers.

Chou li, II, 248 :—Le pêcher (桃 *t'ao*) et la plante *lie* employés dans la cérémonie du serment. Commentator B. (CHENG HÜAN) :—Le pêcher est redouté des esprits. Les vergettes faites avec la plante *lie* servent à expulser les mauvais présages.

Li ki, I, 172 :—When a ruler went to the mourning rites for a minister, he took with him a sorcerer (巫) with a peach wand (桃), an officer of prayer with his reed [brush] (*lie*) and a lance-bearer, disliking [the presence of death]. CHENG HÜAN explains *lie* by 荍 *huan t'iao*, and says it has the power to sweep away evil. Regarding *huan*, see 455 ; the second character stands for 芳 (reeds in flower). [*V. Rh ya*, 210].

Tso CHUAN, 544, 547 :—Accordingly a sorcerer was employed, who first executed the sprinkling with a branch of a peach tree and some reeds (桃菊).

The character *lie* in the *Rh ya* is applied to three different plants [35, 142, 193] but not to a reed.

As to the peach wand employed in sorcery, it seems not quite sure that by *t'ao* in the above-quoted passages really a peach tree is to be understood. In the *Shan hai king* 桃枝 *t'ao chi* (peach branch) is repeatedly mentioned as the name of an herb, sometimes also as the name of a tree. The *Shan hai king* mentions also a plant 鉤端 *kou tuan*. Kuo P'o says it is a kind of *t'ao chi*. The *Kuang ya* gives both names as

synonyms. Finally, in the *Rh ya* [170] it is plainly stated that the *t'ao chi* is a kind of bamboo.

V. supra, 193.

457.—**臺** *T'ai* (now written **臺**). LEGGE says a kind of rush.

Shi king, 272 :—In the hills of the south (of Chou) is the *t'ai*. 409 :—Hats (*li*) of the leaves of the *t'ai* (**臺笠**).

In the *Rh ya* [73] it is called *fu sū* (poor man's need). It has also been identified, but incorrectly, with the plant described in the *Rh ya* [97, q.r].

LU KI :—Its old name is *fu sū*. It is also called **莎草** *so ts'ao*. The plant can be made into rain-cloaks (**蓑** *so*) and hats (**笠** *li*). Some say that it was used for the black silken caps of the officers. The soft smooth skin of the plant is fit for making umbrellas impervious to rain. In the southern mountains it is a common plant.

The *Rh ya i*, after having noticed the *t'ai* or *so* plant used for making rain-cloaks and hats, speaks of another *so* plant in the following terms :—The stalks and leaves of the *so* are like those of the **三稜** *san leng* the three-cornered grass). [The genera *Cyperus* and *Scirpus* and other Cyperaceous plants have generally triangular stems]. The roots resemble the **附子** *fu tsz'* (small tubers of *Aconite*) are very hairy, and known under the name of **香附子** *hiang fu tsz'* (fragrant *fu tsz'*).

These tubers are generally of the size of an apricot kernel, but sometimes as large as a jujube. This is the *Cyperus rotundus* [*v. supra*, 97].

As to the other *so* plant, the *t'ai* of the *Shi king*, used for making hats and rain-cloaks, these names have been referred by Japanese botanists to various Cyperaceous plants.

SIEBOLD, *Syn. plant. æcon. jap.*, 10 :—*Scirpus macrostachyus* (same as *Sc. maritimus*, L.) **蓑衣草** [rain-cloak grass] or **臺**. Japonice *suge*. Pro pileis aliisque utensilibus.

HOFFM. & SCHULTES, 539:—藁, *Scirpus maritimus*, and 120, same Chinese name, *Carex cespitosa*, Thbg. *Ibidem*, 192, 莎草, *Cyperus Iria*, L.

Japanese hats made of the *kasa suge* or *Scirpus maritimus* were exhibited in 1878 at Paris. [See MÈRE, *Prod. végél. du Japon*, 1885, p. 138.]

MAO explains the character 蓑 *so* by 草衣 (clothes made of grass). K'UNG YING-TA adds that these clothes protect against rain. [Comp. also *Shu king*, 108. Tribute of Yü:—The wild people of the islands brought garments of grass 卉服 *hai fu*.]

Nowadays the Chinese agricultural labourers wear rain-cloaks, *so-i* and hats made out of the hair-like bracts of a palm, the *Chameroops Fortunei*, Liml. [See FORTUNE's *Wanderings*, 53, 54.]

V. supra, 73, 97.

Jap., 452, *Carex dispalatha*, Boott, 藁.

458.—The *Shan hai king* mentions a plant 藁草 *gau ts'ao*. Kuo P'o explains that it is the 青藁 *ts'ing gau*, which resembles the 莎 *so* but is larger. He evidently means the 青蘋 *ts'ing pin*, a plant mentioned in one of the poems of SZ'MA SIANG-JU [† 126 B.C.], together with the 莎 *so*, and the 薛 *sie*, and in CHANG HENG's poem *Nau tn fu* [After Han dynasty] together with 蘆 *piao*, 莞 *huan* and 芡 *ch'u*. The *Shuo wen* says that the *ts'ing fan* resembles the *so*. Thus we may suppose that it was a cyperaceous plant.

As to the other plants noticed by the ancient poets, the *ch'u* is *Boehmeria nirea* [*r. supra*, 391], the *huan* a rush [see 455]. Regarding the *piao*, a sedge grass, see the *Rh ya* [209].

The 薛 *sie* is said by a commentator on SZ'MA SIANG-JU to be the same as the 藾蒿 [see the *Rh ya*, 119]. But the dictionary *ya pien* explains it by *so*.

Amæn. exot., 900, 薛, *setz*, vulgo *suge*. Herba palustris, foliis arundinaceis brevioribus tenuis, ex quibus ad albedinem

redactis construntur elegantissimi pilei, quibus teguntur deambulantes feminae. *Suge*, as we have seen, is the Japanese name for *Scirpus maritimus*.

459.—茅 *Mao* or 白茅 *pai mao* (white *mao*),²⁰ a grass repeatedly mentioned in the Classics. LEGGE calls it the white grass.

Shi king, 34 :—A dead antelope wrapped up with the white grass (*pai mao*). 232 ["Life in Pin"] :—Let us in the daytime collect the grass (*mao*) and at night twist it into ropes. 416 :—The fibres from the white-flowered rush. 白華管 [*see the next*] are bound with the white grass (*pai mao*).

Chou li, I, 84 :—Le préposé au territoire hors banlieue fournit quand il y a des sacrifices les plantes odoriférantes [*siao*, v. 435] et les herbes pour envelopper (*mao*). (Commentator B. (CHENG HŪAN) :—Les secondes servent pour envelopper les pièces des victimes et clarifier le vin dans les sacrifices offerts aux génies de l'intérieur et de l'extérieur.

Li ki, I, 446 [Sacrifices] :—In straining the new liquor for the cup they used the white *mao* grass. II, 165 :—At the burial of a great officer, the progress of the bier was guided by the chief artizan with a reed of white grass (*mao*) in his hand.

Tso CH'UAN, 139, 140. [B.C. 655.] LEGGE's translation reads :—Your tribute of covered cases of the three-ribbed rush [the Chinese text has only 貢包茅, tribute of *mao* grass for wrapping up,] is not rendered, so that the king's sacrifices are not supplied with it, and there is nothing with which to strain the spirits.

See also the *Rh ya* [183].

LI SAO, 55 :—Les herbes *tsuen* et *honi* [fragrant herbs, v. 417, 406] sont transformées en herbes *mao* ou mauvaises herbes.

²⁰ It is not to be confounded with the 茅香 *mao kiang*, a fragrant grass, according to LOUREIRO, *Flora cochin.* 793, *Andropogon schuennanthus*, L. Comp. P., XIVb, 68; Ch., XXV, 71. Phon 20, XI, 8.

LU KI, 23 :—In ancient times the white *mao* was used to wrap up things offered in sacrifices, and also for straining wine.

P., XIII, 45, *pai mao*. LI SHI-CHEN says :—*Mao* is a general name including several species. Besides the *pai mao* there are the *huang mao* or yellow *mao*, the *hiang mao* or fragrant *mao*, the *kien mao* [see the next] and others. All these have the same leaves. The difference is in the flowers. The *pai mao* or white *mao* is a small plant. It flowers in the fourth month; white flowers in panicles; small seeds. Its root is white, very long and thin, resembling a sinew; it has joints, is of a sweet taste. In the *Pen ts'ao king* this drug is called 茅根 *mao ken* (*mao* root). It emits light in the night. The plant is also used for thatching houses.

In the Peking mountains the people apply the name *mao* to *Imperata arundinacea*, Cyrill, and *I. sacchariflora*, Maxim., beautiful grasses with long leaves and spike-like panicles, with long silvery white silky hairs on the glumes. The plant represented under *pai mao* in Ch., VIII, 8, may be an *Imperata*. The *Kiu huang* [LIII, 14] signifies the young sprouts with the root of the *mao* grass. These sprouts are eaten by the people, like those of *Typha* and *Phragmites*. P. [l.c.] terms them 茅針 *mao chen* (*mao* needles).

According to LOURKEIRO [*Flora cochin.*, 67], in South China the Chinese name *mao ken* (*mao* root) is applied to *Saccharum spicatum*, L., (radice perenni, repente, articulata). This plant is now called *Perotis latifolia*, Ait. HENRY [l.c., 272, 433] :—In Hupei, *Imperata arundinacea*, Cyr., is called *mao* or *sz' mao* (silky *mao*).

Amæn. exot., 899, 茅 *boo*, vulgo *tsubanna*. Gramen arundinaceum caule longiori, panicula sparsa. THUNBERG thinks [*Flora jap.*, 42] that KEMPFFER refers to *Saccharum spicatum*. But THUNBERG's *S. spicatum*, in FRANCHET and SAVATIER's *Enum. Pl. Jap.*, II, 188, is referred to *Imperata arundinacea*. In SIEBOLD's *Syn. plant. æcon. jap.*, 46, we have *amame*,

茅根. Graminea obscura, in gonorrhœa ab agricolis laudata. See also the plants figured in the *Phon zo*, VIII, 1, 2, under 茅 and 白茅. At Peking *Anthistiria arguens*, Willd., is called 黄茅 *huang mao*. The mountain people use this coarse grass provided with rigid awns, for thatching roofs. HENRY [i.e., 142] refers the *huang mao* figured in *Ch.*, VIII, 10, to *Heteropogon hirtus*, Pers., which he terms "spear grass" and which at Ichang is much used for thatch.

It cannot be ascertained what the 青茅 *tsing mao* of the *Shu king* was. It is noticed there [112, "Tribute of Yü"] as a product of the Province of 荊州 King chon (Hukuang). LEGGE calls it the three-ribbed rush. The three-ribbed rush (when presented as tribute) was put in cases, which again were wrapped up.

CHENG HÜAN explains that this grass was a kind of *mao*, having three ridges (三脊) and provided with hairs and prickles (stiff awns), and used for straining the sacrificial wine. K'UNG AN-KUO takes *tsing* and *mao* to be different, and suggests that *tsing* is mentioned in the *Chou li* as a vegetable [*v. supra*, 361]. But there is a statement by 管子 KUAN TSZ' [who lived in the 7th century B.C.] which has come down to us, saying that between the Kiang and the Hwai river (Kiang-su, Anhui) a grass is found whose leaves have three ridges and which is called 青茅 *tsing mao*.

I may notice that SIEBOLD [*Syn. plant. æcon. jap.*, 45] mentions a Graminea obscura tinctoria sinice 青茅, japonice *karias*. This is, I suspect, the *Imperata tinctoria*, Miq., [Prol. *Fl. japon*, 177]:—Ad viride tingendum adhibetur, teste Siebold. But according to KÆMPFER [*v. infra*, 461] *karias* is *Phalaris arundinacea*.

Another kind of *mao* grass is, according to LI SHI-CHEN, the 芒 *mang*, regarding which see the *Rh ya* [188].

Jap., 1146, *Imperata arundinacea*, Cyr., 白茅. II. 272. C., 823.
S., II, 34.

" 1147, *Imperata tinctoria*, Miq., 青茅.

" 1094, *Hierochloa borealis*, Roem. & Schult., 茅香.

Saccharum spicatum, v. Sm., 188. A., XV, 182.

Pr., 222, gives *Eulalia japonica*, Trin., as 茅栗.

460.—菅 *Kien*, a grass mentioned in the *Shi* and likened to the *mao*. LEGGE calls it the white-flowered rush or rope-rush.

Shi king, 209 :—The mat of the east gate is fit to steep the rope-rush (*kien*). 416 :—The fibres of the white-flowered rush (白華菅) are bound with the white grass (*mao*, see the preceding). In the *Shi king* [146] the character 茶 *t'u*, generally applied to the sow-thistle, denotes, according to the Chinese commentators, the *kien* grass [*c. supra*, 365].

In the *Rh ya* [48] we have the wild *kien*, also called the white-flowered. KUO P'Ō says it is a kind of *mao*. MAO explains that the *kien* is the same as the *mao*, which after it has been steeped is called *kien*. In the *Shan hai king* it is stated that mats were made out of the white *kien* and used in the sacrifices to the mountain spirits. *Li ki*, II, 469, "Mourning Rites." 菅屨 LEGGE translates "sandals of straw."

LU KI :—The *kien* resembles the *mao*, but it is glabrous. The root contains a white flour. The plant is flexible. After steeping and drying it, strings and cordage can be made of its fibres.

P., XIII, 45, speaks of the *kien* under the head of *pai mao*, as of a grass akin to the *mao*. It has prickly awns, flowers in autumn (the *mao* flowers in summer). *Ch.* [VIII, 9] figures under *kien* a Graminea which HENRY [*l.c.*, 343] identifies with *Anthistiria ciliata*, L., a kind of "spear grass" in Hupei where it is also known under the name of 苞子草 *pao tsz' ts'ao*.

The *pao* grass is mentioned in the *I li ki* [I, 103]:—One should not enter the ruler's gate in rush sandals (苞屨). The *Shu wen* says the *pao* is a grass of which the people of 南陽 Nan yang (Honan) make coarse shoes. In the *Han shu* [quoted in *K.D.*] it is stated that the *pao* is also fit for being woven into mats.

The *Tao chuan* [369, 372], referring to the year B.C. 580, quotes a passage from an ode of the *Shi king*, now lost, which reads as follows:—

Though you have silk (絲) and hemp (苧)
Do not throw away your grass (菅) and rushes.

What LEUKE translates by rushes is 薊 *k'uai* in the Chinese text. The ancient commentary says that it is a grass akin to the *kien*.

The *I li* [chapter on Mourning Rites] notices shoes made of *k'uai* and 蕭 *piao* grass [v. *supra*, 458]. According to some authors of the Han, quoted in *K.D.*, the *k'uai* was also used for making cords and mats.

P., XXIII, 14, *k'uai*. CH'EN TS'ANG-K'U [8th century] says that the seeds of the *k'uai* grass are eaten by the people like rice.

HOFFM. & SCHULTES, 538, 薊, *Scirpus cyperinus*, Kth. But the drawing in the *Phon so* [XII, 17-18] under this Chinese name looks rather like *Andropogon tropicus*, Sprengel.

KUO P'IO, in commenting upon the *Shan hai king*, says that the 蓼 *kien*, repeatedly mentioned there, is akin to the 菅 *kien* and the 茅 *mao*, and that the 荷 *sün*, spoken of in the same work, is the same as the 苞 *pao*. Only the description of the *sün* in the *Shan hai king* (yellow flowers, red fruit which makes those who eat it handsome) does not agree with this identification.

Jap., 2020, *Scirpus Eriophorum*, Michx., var. *nipponicus*, Fr. & S.,

蒹草.

„ 2024, *Scirpus maritimus*, L., 荆三稜.

„ 2025, „ *mucronatus*, L., var. *subleucocarpus*, 水毛花.

„ 2028, „ *plantagineus*, Retz. [v. *supra*, 59].

461. — 蒹 *Lā*, name of a plant mentioned in the *Shi king*. LEGGE terms it “king grass.” The character is more correctly written 蔣. 411:—All the morning I gather the king grass, and do not collect enough to fill my hands.

The *Rh ya* [10] writes 蔣 *lā*, same as 王芻 *wang ch'u* (king grass). This name occurs in the *Li sao*. [See the quotation under 421, *supra*.]

LU KI:—The *lā* plant resembles the bamboo; it grows to the height of five or six feet. The people living on the 淇 K'i river (a tributary of the Wei, in the north-east of Honan) call it 蔣竹 *lā chu* (*lā* bamboo) for the stem and the leaves are like the bamboo and of a dark green colour.

The *Rh ya i* says that the *Pen ts'ao* identifies the *lā* plant of the *Shi* with the 蔣草 *tsin ts'ao*. This latter plant is treated of in *P.* [XVI, 86]. It is said there that it is also called *huang ts'ao* (yellow grass), for the plant affords a yellow dye (it is not stated whether the leaves or the root). In ancient times the people were obliged to collect this tinctorial plant for the king's stores, whence the name “king's grass.” *Ch.* [XI, 72] figures under *tsin ts'ao* the leaves of a grass.

Amoen. exot., 899:—蔣 *dsin*, vulgo *karrias*, *kakkina*, *arai*. Gramen arundinaceum minus, Tab. Gramen arundinaceum spicatum, C.B.P. Judging from KÄMPFER's references, this would be *Phalaris arundinacea*, L. [See also THUNBERG, *Flora japon.*, 44, and *supra*, 454 and 459 at the end.] SIEBOLD says that *karias* is the name of an obscure tinctorial plant in Japan. As far as I know, *Ph. arundinacea* is not a tinctorial plant. But the plant is common in China as well

as in Japan. The 蕺 in the *Phon zo* [XX, 14, 15] is not *Phalaris*.

Jap., 232, *Arthraxon ciliare*, Beauv., 藨草.

462.—稊 *Lang*. LEGGE calls it wolf's-tail grass, a kind of weed, or darnel.

Shi king, 224:—Cold come the waters down from that spring and overflow the bushy wolf's-tail grass. 380:—Picture of husbandry, growth of the grain described:—

It ears and the fruit lies soft in the sheath,
It hardens and is of good quality,
There is no wolf's-tail grass, no darnel [*yu*, see the next].

Rh ya, 189, *lang*, same as 童梁 *t'ung liang*.

CH'ENG HÜAN explains:—Grain that flourishes, but does not form seeds is called *t'ung liang* (blasted ears of grain).

LU KI repeats the above explanation and then says that now the people call the plant mentioned in the *Shi*, 宿田霸 *Su t'ien weng* or 守田 *shou t'ien*. In the *Wai ch'uan* [WYLIE'S *Notes*, p. 6] it is stated that horses are fond of the *lang* and the *yu* [see the next].

The *Rh ya i* says that the *lang* plant is a bad weed growing in corn-fields among cultivated grain. But it affords a valuable food for cattle.

P., XXIII, 14, 狼尾草 *lang wei ts'ao* (wolf's-tail grass). It is said to be the same as the plant *lang* of the *Shi king* and of the *Rh ya* [189], and as the *meng* or *lang wei* (wolf's tail) of the *Rh ya* [20]. LI SHI-CHEN states that the plant resembles the *su* (*Setaria italica*), but its ears are of a yellowish purple colour and provided with bristles. In time of scarcity it supplies food. *Ch.*, XIII, 25.

The drawing in the *Phon zo* [XLI, 15, 16] under 狼尾草 seems to represent *Gymnothrrix japonica*, Kth., figured in THUNBERG'S *Flora japon.* [p. 48, tab. 9] under the name of *Panicum hordeiforme*. It is also the same as his *Cenchrus*

purpurascens, and a common plant in Japan and China. The long spike is conspicuous by the numerous purplish awnlike bristles that almost conceal the flower. This agrees with the Chinese description of the wolf's-tail grass.

463.—**莠** *Yu*. This is another gramineous weed in corn-fields, repeatedly mentioned in the Classics. LEGGE translates the name by weeds injurious to grain, darnel, fescue.

Shi king, 157 :—Do not try to cultivate fields too large; the weeds (*yu*) will only grow luxuriantly. 380 :—See the quotation *supra* in 462 :—No wolf's-tail grass, no darnel (*yu*).

Li ki, I, 256, *yu* translated by darnel. See the quotation under 431.

The character *yu* occurs thrice in the *Hsia Calendar* [56, 58, 80], but it seems that it stands there for 秀 *shu* (to flourish).

Mencius, 377 :—MENCIUS said, I hate the darnel (*yu*) lest it be confounded with the corn (苗).

The Chinese commentators say the *lang* [see the preceding] and the *yu* are plants injurious to the grain (害苗). The *Shuo wen* says the *yu* is a plant which grows among grain. Not mentioned in the *Rh ya*.

P., XVI, 63, 狗尾草 *kou wei ts'ao* (dog's-tail grass). It is said to be the same as the *yu* of the Classics. LA SHI-CHEN says it is a common grass, resembling the *su* (*Setaria italica*), but is smaller. *Ch.*, XII, 4, *yu* or *kou wei ts'ao*. The figure seems to be intended for *Setaria viridis*, Beauv., as also the drawing under the same names, *Kim hwang*, LII, 8. At Peking even nowadays the classical name *yu* is applied to *Setaria viridis*, a very common grass. The people term it generally 穀莠子 *ku yu tzu'* (the *yu* of the grain).

E. H. PARKER, *Chinese Names of Plants* :—The name *kou wei ts'ao* in Sz ch'nan is applied to *Gymnothrix hordeiformis*,

Beauv., at Canton to *Setaria glauca*, Beauv. HENRY [*l.c.*, 180]:—*Kan wei ts'ao* in Hapei = *S. glauca*.

Auren. e.col., 899:—*莠 ijun*, vulgo *futakusa*, *jeno konkusa*, *innubie*. Gramen panicum, L. Tabern. Gramen panicum spica simplicis, C. Bauh, P. KÆMPFER's references seem to point to *Setaria glauca* or *viridis*, but THUNBERG [*l.c.*, 43] thinks that he means *Paspalum villosum*.

Jap., 1246, *Leptatherum japonicum*, Fr. & S., 莠竹.

Other Gramineæ and Cyperides identified by the Japanese are:—
Gramineæ:—

Jap., 117, *Alopecurus geniculatus*, L., 看麥娘.

„ 233, *Arundinaria japonica*, S. & Z., 千里竹.

„ 311, *Avena fatua*, L., 燕麥.

„ 314, *Bambusa aurea*, Sieb., 鳳尾竹.

„ 315, „ *nana*, Roxb., var. *gracillima*, Krz., 紫竹.

„ 318, „ *senanensis*, Fr. & S., var. *albo-marginata*,
Fr. & S., 山白竹.

„ 319, *Bambusa sterilis*, Krz., 人面竹.

„ 336, *Beckmannia cruceformis*, Host., 蔞草. [*l. supra*,
151.]

„ 370, *Brachypodium japonicum*, Miq., 鴛觀草.

„ 371, „ *sylvaticum*, Rcm. & Schult., 燕麥
[*v. supra*, 32, 335].

„ 380, *Bromus japonicus*, Thbg., 雀麥 [*v. supra*, 32].

„ 650, *Cox agrestis*, Lour., 慈苳.

„ 651, „ *lacryma*, L., 川穀.

„ 853, *Eilensine coracana*, Gaertn., 龍瓜稈.

„ 879, *Eragrostis ferruginea*, Beauv., 知風草.

„ 904, *Eulalia japonica*, Trin., 芒 [*v. supra*, 188].

„ 1098, *Hordeum vulgare*, L., 大麥.

„ 1327, *Lophatherum elatum*, Zoll., 淡竹葉.

„ 1555, *β. Panicæ* [*v. 28*]. *Phragmites*. [*l. 455*].

„ 1584, *Pennisetum japonicum*, Trin., 屎草.

„ 1959, *Saccharum officinarum*, L., 甘蔗.

„ 2112, *Sorghum* [*v. 335*].

Jap., 2395, *Zea mays*, L., 玉蜀黍.

" 2401, *Zizania aquatica*, L., 菰.

" 2406, *Zoysia pungens*, Willd., 結縷草.

Cyperaceae :—

Jap., 472, *Carex dispalatha*, Boott., 薹 [v. 457].

" 485, " *macrocephala*, Willd., 薹草.

" 494, " *pachygyna*, Fr. & S., 薹稷.

" 740, *Cyperus rotundus*, L., 香附子 [v. *supra*, 97].

" 741, " *scrotinus*, Roth., var. *depauperata*, Fr. & S.,

草三稜.

" 743, " *umbellatus*, Bth., 礞子苗.

" 956, *Fimbristyles diphylla*, Vahl., var. *tomentosa*, Bth.,

飄拂草.

" 1218, *Kyllingia monocephala*, L., var. *leiolepis*, Fr. & S.,

水蜈蚣.

" 1300, *Lipocarpa microcephala*, Kth., 湖瓜草.

" 2020, *Scirpus* [v. 460].

464.—*莽草* *Mang ts'ao*. A poisonous plant mentioned in the *Chou li* [II, 389] :—Le destructeur est chargé d'expulser les teignes. Il les attaque par le sacrifice conjuratoire. Il fait contre eux des fumigations avec la plante *mang*.

The same plant (*mang ts'ao*) is stated in the *Shan hai king* to be employed for stupefying fish. The same is said there regarding the plant 芒草 *wang ts'ao*.²¹

The character 莽 *mang* has several meanings. According to the *Rh ya* [169] it is a kind of bamboo. The *Fang yen* says that in the southern part of 楚 Ch'u (Hunan) it means 草 herbs. The *Shuo wen* explains the character by "thick grass, jungle."

In *P.* [XVIIb, 47] 莽 *mang* is given as the name of a poisonous plant, also called 蘭 (to be pronounced *wang*),

²¹ KUO P'ao here gives the pronunciation *wang* for the first character, which is generally pronounced *mang*. [V. *supra*, 188] where 芒 *mang* denotes a grass.

芒草 *wang ts'ao* and 鼠莽 *shu mang* (rat's mang). It is identified with the plant *wei* or *ch'un ts'ao* [*Rh ya*, 147]. From the ancient authors quoted in *P.* regarding the *mang ts'ao* we learn that this plant is not uncommon in Sz'ch'nan and Central China. Some say it is a twining plant, others a tree. It is poisonous and employed by the people to poison fish and rats. *Ch.*, XXIV, 52 represents under *mang ts'ao* a plant with serrate leaves and flowers not unlike those of Aconite.

In Japan the Chinese character *mang* is applied to *Illicium religiosum*, Sieb., a small tree held sacred by the Japanese, and found also in Southern China. Its seeds and leaves possess poisonous properties. But the Chinese poisonous plant *mang* is quite different.

Amoen. e.col., 880, 881, 鼠莽, *skimmi*, with figure, is *Illicium religiosum*. SIEB. & ZUCC., *Flora japon.*, I, 5, tab. 1, and *Phon zo*, XXIV, 5, 莽草, *Illicium religiosum*. [*Jap.* 1141.]

465.—芫 *Yān*. A plant mentioned in the *Shan hai king*. Kuo P'ao says a medicinal plant. The *Rh ya* [258] writes 杭 *yān*; another name 魚毒 *yā tu* or fish-poison.

The ancient dictionary *Ki tsiu pien* [1st century B.C.] states that the 芫 *yān* flowers when boiled and thrown into water kill fish. The *Shuo wen* explains *yān* by "fish-poison."

P., XVIII, 42, *yān hua*. Poisonous plant. A small tree with violet flowers; another sort has yellow flowers. Flowers, leaves, and bark of the root used in medicine. *Ch.* [XXIV, 44] represents under *yān hua* a daphne. HENRY [*l.c.*, 281] thinks it is *Daphne genkwa*, S. & Z.

SIEB. & ZUCC. *Flora japon.*, I, 137, tab. 75, and SIEB., *Icon. ined.*, VI, 芫花, *Daphne genkwa*. Violet flowers. Flowers and bark used in medicine. The plant is said to have been introduced into Japan from China.

At Peking the name *yātu hua* is applied to a poisonous thymelaceous plant—the *Wickstroemia chamcedaphne*, Meissn., with yellow flowers. Comp. TATARINOV, *Catal. med. sin.*, 31. It is employed for stupefying fish.

Jap., 753, *Daphne genkwa*, S. & Z., 堇花.

" 389, *Buddleia curviflora*, Hk. & A., 醉魚草.

166.—葶藶 *Ting niang*, a plant mentioned in the *Shan hai king*, and likewise said to kill fish.

The 焉酸 *yen sau* is another poisonous plant noticed in the *Shan hai king*.

467.—荔 *Li*. A plant mentioned in the *Li ki*. LEGGE translates broom-sedge. I, 304 [*Yue ling*]:—Second month of winter. The broom-sedge rises up vigorously. CHENG HÜAN explains *li* by 馬蘭 *ma lai* (a fragrant plant). The *Shuo wen* says the *li* is an herbaceous plant which resembles the 蒲 *p'u* (*Typha*) but is smaller. The roots are made into brushes.

P., XV, 57, 蠶寶 *li shi*, a name found in the *Pen ts'ao king*. The ancient authors say that the *li* of the *Li ki* refers to this plant. It has many other names, 馬帚 *ma chou* (horse's broom), 馬蘭 *ma lin*, etc. The plant has violet flowers, the fruit is a capsule, seeds resemble hemp-seeds. The leaves resemble *Allium* leaves. The root is long, fine (fibrous), of a yellow colour. The people use it for making horse-brushes. The authors refer to this the plant *p'ing* or *ma chou* in the *Rh ya* [36]. *Ch.*, XI, 42, *li shi*. The plant figured there is an *Iris*. At Peking *ma lin* is the common name for *Iris oryopetala*, Bge.

Amœn. exot., 872, 馬蘭 *faria*, vulgo *buran*, also *reso kjosa*. *Iris hortensis* *alba*, *germanica*, C.B.P. So *moku*, II, 8, same Chinese name, *Iris ensata*, Thbg.

E., 165, family 馬蘭, names of *supra*, 36, are syn.

Jap., 1160, *Iris ensata*, Thbg., var. *chinensis*, Max., 馬蘭. 蠶實.

" 1162, " *japonica*, Thbg., 繡蝶花.

" 1163, " *levigata*, Fisch, 燕子花.

" 1164, " *levigata*, var. *Kamyeri*, Sieb., 玉單花.

" 1167, " *suberica*, L., var. *orientalis*, Thbg., 溪蓀.

" 1168, " *lectorum*, Max., 鳶尾.

468.—*芎藭 Huan lan*, name of a plant and title of an ode in the *Shi king* [103]. LEGGE calls it the sparrow-gourd and thinks it may be a *Tylophora*.

See the *Rh ya* [93], *kuan* or *huan lan*. Kuo P'o explains:—A creeping plant, the stalks of which, when broken, exude a white juice. Edible.

LU KI:—*Huan lan* or 藎摩 *lo mo*. In 幽州 Yu chou the people call it 雀瓢 *tsio p'iao* or sparrow-gourd. The plant creeps on the ground while the stem is weak, but when it meets with a support it climbs.

P., XVIIIb, 32, *lo mo*. T'AO HUNG-KING [5th century] describes it as a climbing plant, the stalks of which, when broken, exude a white juice. It is much cultivated. The leaves are thick and large, they may be eaten both raw and cooked. LI SHI-CHEN adds:—It has small light violet flowers resembling little bells. The fruit is green, from two to four inches long, pointed at the lower end. Inside it is filled with white, silky hairs (coma of the seeds). The plant described is the *Metaplexis Stauntoni*, Rœm. & Schult. An *Asclepiadea*, common in North China, wild and cultivated. Drawings *Ch.*, XXII, 69, and *Kiu huang*, L, 22. In the latter work it is called 羊角菜 *yang kio ts'ai* (ram's horn vegetable), on account of the shape of the fruit.

V. supra, 93. *Jap.*, 1432, *Metaplexis Stauntoni*, Rœm. & Schult., 藎摩.

E., 73, family 白花菜, with bad figure perhaps of *Gynandropsis pentaphylla*, DC.

[H., 364. P., XXVI, 67. *Jap.*, 1054]. The synonym 羊角菜 is mentioned.

E., 77, 20, family 蘿藦, has a figure of 羊角菜, an *Asclepiadea*, probably a *Cynanchum*. [Comp. *supra*, 378].

Other *Asclepiadea*. *Jap.*, 863, *Endotropis caudata*, Miq., 牛皮消.

„ 1101, *Hoya carnosa*, R. Br., 蘿藦.

„ 1398, *Marsdenia tomentosa*, Morr. & D.,

牛欄菜.

„ 1807, *Pycnostelma chinensis*, Bge., 徐

長藤.

VIII.—Fruits.

469.—LI SHI-CHEN, in the introduction to the chapter on edible fruits, P., XXIX, 1, says that the character 果 *kuo* denotes edible fruits produced on trees, whilst the term 蔬 *lo* is applied to edible fruits of herbaceous plants [especially cucurbitaceous plants. *l. supra*, 382]. The same definition we find already in the *Shuo wen*.

Chou li, I, 383 :—Les jardiniers sont préposés aux jardins et potagers appartenant à l'état. Ils plantent les fruits à noyau, des fruits sans noyaux et des fruits rares et précieux. What BIOT translates by "fruits à noyau et sans noyau" are *kuo* and *lo* in the text. CHENG HÜAN explains *kuo* by 有核 (having a stone) and *lo* by 無核 (without a stone) and gives as examples of the first the jujube and the plum, and of the second 瓜 *kua* and 瓠 *hu* (gourds and bottle-gourds).

Li ki, I, 82 :—When a fruit (果) is given by a ruler and in his presence, if there be a kernel (核) in it, the receiver

should place it in his bosom. 核 *Ho* properly means the stone of a fruit; the kernel is 仁 *jen*. [See also the *Rh ya*, 330].

Another somewhat obscure classification of fruits is given in the *Chou li* [I, 194-195] in the chapter which deals with the productions in different localities :—

Première classe : Montagnes et bois (山林) Les espèces plantées (植物) sont des espèces à couleur noirâtre (皂). Commentator A. (CHENG SZ'UNNG) :—Les espèces plantées sont celles qui ont une racine (根生之). La couleur noirâtre indique le châtaignier (栗) et l'arbre à bois dur, appelé *tsao* [柞 an oak, *r. infra*, 534]; maintenant le fruit de cet arbre est appelé *tsao tsou* (皂斗) boisseau de noir. Selon le *Yun hoei* cité par KANG HI au caractère *tsao*, l'arbre dans cette phrase est 橡 *siang* (le chêne) [*r. infra*, 534].

Seconde classe : Cours d'eau et lacs (川澤). Les espèces plantées sont des espèces à enveloppe 膏物. [The commentary says the first character stands for 囊, a bag.] Commentator B. (CHENG HÜAN) :—Les plantes aquatiques *kien* (茨) et *lien* (蓮) le nénuphar. [Another commentator adds 蓴 *ling*.] See regarding these plants, *Euryale*, *Nelumbium*, *Trapa* [*supra*, 395, 396, 397].

Troisième classe : Collines et côtes (丘陵). Les espèces plantées sont des espèces à fruit charnu (聚物). The commentary says the first character stands for (核 fruit-stone). Commentator B. (CHENG HÜAN) :—Des cerisiers (李), des pruniers (梅). BIOT is mistaken; the first is the common plum, the other *Prunus mume* [*r. infra*, 473]. KIA YUNG-YEN adds the jujube and the apricot.

Quatrième classe : Bords des rivières et plaines basses (填衍). Les espèces plantées sont des espèces à noyan (荚). [BIOT is mistaken; this character means a pod, a leguminous

fruit. It is also applied to the silicles of cruciferous plants, and to the seed-vessels of the elm. *V. supra*, 354]. Commentator B. (CHENG HÜAN) :—*Le tsi* 藜, shepherds' purse, le *wang ki* 王棘, sorte de jujubier. [See regarding these plants, *supra*, 367 and *infra*, 485]. A later commentator observes judiciously that CHENG HÜAN is mistaken with respect to the *wang ki*, which has not pods but a fruit with a stone.

Cinquième classe : Plaines hautes et terrains marécageux (原陽). Les espèces plantées sont des espèces touffues (叢). Commentator B. :—Roseaux, plantes sauvages [荻葦, rushes and reeds, *v. supra*, 455].

The 五果 *wu kuo* or five [principal] cultivated tree-fruits of the ancient Chinese were, according to LI SHI-CHEN, 李杏桃栗棗 (the plum, the apricot, the peach, the chestnut, the jujube). This classification is attributed to the Emperor SHEN KUNG.

470.—桃 *T'ao* is, as is well known, the peach which is largely produced in Northern China. It is frequently mentioned in classical and other ancient writings.

Shi king, 12 :—The peach-tree is elegant and young, brilliant are its flowers, abundant will be its fruit. 165 :—There are peach-trees in the garden, the fruit may be used as food. [Also, 33, 515.]

Li ki, I, 460, 461 ["Diet of the Ancient Chinese"] :—Preserved peaches. [See *infra*, 484, note]. I, 257 [*Yü ling*] :—Second month of spring. The peach-tree begins to blossom.

Chou li, I, 108 :—Les paniers de l'offrande des aliments sont remplis avec des jujubes (棗), des châtaignes (栗), des pêches (桃), des abricots secs (乾葎), des petites châtaignes (榛). II, 248 :—Le pêcher employé dans la cérémonie du serment [*v. supra*, 456].

Hia Calendar, 21, 78:—In the *Shan hai king* the *t'ao* or peach is frequently mentioned. *Bamboo Annals* [166], king King, B.C. 525. In winter, in the 12th month, peach-trees and almond-trees in flower. *Rh ya*, 267, 268.

P., XXIX, 16, *t'ao*. *Ch.*, XXXII, 13. Good drawing of the peach, flowers and fruit. *Kiu huang*, LVIII, 18.

Amæn. exot., 798, 桃 *too*, vulgo *momu*. *Malus persica*. *Phon zo*, LXII, 1-13, various varieties of the peach.

V. supra, 267. *S.*, XI, 10. *C.*, 1257-1259. *A.*, XV, 149. *Jap.*, 1781.

471.—杏 *Hing* (the apricot) is without any doubt a native of China. The mountains of North China abound in wild apricot trees with edible fruits. There can also be no doubt that it was cultivated in China from remote antiquity. It is therefore surprising that the apricot is not mentioned in the *Shi king*. The character *hing* is also not found in the *Rh ya*. It appears, however, in the *Hia Calendar* [21]:—First month. Plum, apricot and peach blossom. [54]:—Fourth month. Apricots are seen in the gardens.

Li ki, I, 461:—Fruits eaten by the ancient Chinese [see quotation *infra*, 484, note].

Chou li, II, 194:—Fire of the wood. [See quotation in 528, note.]

Bamboo Annals, 166. [See the quotation under 470]. *LEGGE* translates *hing* erroneously by almonds. *Shan hai king*, the *hing* frequently mentioned.

P., XXIX, 3, *hing*. *Ch.*, XXXII, 14, good drawing, flowers and fruit. *Kiu huang*, LVIII, 16.

Amæn. exot., 798, 杏 *kjoo*, vulgo *kara momu*, i.e., *momu* ex *Cataja*. It. *ansu*. *Malus Armeniaca*, fructu majori. *Phon zo*, LXI, 5, 杏, *Prunus armeniaca*.

E., 230, family 杏, with good figure.

S., XI, 8. *A.*, XV, 149. *Jap.*, 1770.

472.—季 *Li* is the Chinese name for the common edible plum, *Prunus domestica*, L. The fruits cultivated at Peking under this name, a dark purple and a yellow variety, are the same as we see in Europe. Other varieties are grown in the south. [Comp. Index Floræ sin., 218.]

Shi king, 515 :—When one throws me a peach, I return him a plum. [See also 35, 123, 272.]

Li ki, I, 461 :—Fruits eaten by the ancient Chinese. [See quotation under 484 note].

Mencius, 161 :—A plum half-eaten by worms. *Shun hai king* frequently. *Rh ya*, 269-271, 330, 331.

P, XXIX, 1, *Li*. Drawings *Ch.*, XXXII, 33, *Kiu huang*, LVIII, 6. In Japan, where *Prunus domestica*, according to SIEB. [*Syn. plant. arcon. jap.*, 361], has been introduced from China, the same Chinese name is applied to it. *Phon zo*, LXI, 2-4, 李, various varieties of *Pr. domestica*.

V. supra, 269. *S.*, XI, 12. *Sm.*, 174. *Pr.*, 184.

473.—梅 *Mei* nowadays in China is a general term applied to several species of *Prunus*, some of them with edible fruits, others not eatable. But what is called *mei* par excellence seems to be *Prunus mume*, Sieb. At least the 梅花 *mei hua* (*mei* flower) cultivated at Peking for its beautiful double flowers, and known also under the name of 杏葉梅 *king ye mei* (*mei* with apricot leaves), is *Pr. mume*, to which species in Japan also the Chinese name 梅 is applied.

Amorn. erot., 梅 *bai*, vulgo *ume* et *ume bos*. *Prunus sylvestris spinosa*, fructu magno. Fructus fœcibus Japonensis cerevisiæ (*sacki*) conditi, in Indiam Sinamque transvehuntur. SIEBOLD & ZUCC., *Flora japon.*, I, 29, tab. 11; *Phon zo*, LXI, 10-13. *Pr. mume* is cultivated in Japan as an ornamental shrub and also for its fruit, which is salted green or employed in this unripe state for preparing a cooling acid drink. The exceedingly acid dried fruit of a *Prunus*, said to be brought from the south, is sold at Peking

under the name of *suan mei* (sour plum) and used for preparing a refreshing beverage. I suspect this is *Pr. mume*, although this species does not appear in the *Index Florae sinensis*. I cannot say what *Prunus* the figure under *mei* [*Ch.*, XXXII, 12] is intended for, but the *mei* described in *P.*, XXIX, 11, is, I believe *Pr. mume*. LI SHI-CHEN says the leaves and fruit of the *mei* resemble those of the apricot; the fruit is acid; it is salted or dried or smoke-dried. In the latter state it is called *wu mei* (black plum).

The 檢葉梅 *yü ye mei* (*mei* with elm-leaves) a beautiful ornamental shrub frequently cultivated at Peking, is the *Prunus triloba*, Lindl. Small fruits, not eatable.

I suspect the *mei* of the Classics is *Prunus mume*.

Li ki, I, 460 ["Diet of the Ancient Chinese"] :—Water syrup of prunes (醃). The commentators explain the character by 梅漿 (*mei* syrup). *Ibidem* :—For preserved peaches and plums (*mei*) they placed egg-like suet. I, 461 :—*Mei* mentioned among the fruits eaten by the ancient Chinese. [See the quotation *infra*, 484, note.] LEGGE translates here *mei* by ballaces.

In the *Chou li* [I, 105] we have the term 乾棗 *kan lao* [see the quotation in 470]. CHENG HŪAN explains it by dried *mei*.

Hsia Calendar, 21 :—First month. The plum (*mei*) blossoms. 73 :—Fifth month. Cooked are the plums (*mei*).

The *mei* is frequently mentioned in the *Shan hai king*. KUO P'o says it resembles the apricot, but is acid. [Compare also the *Rh ya*, 227, 237, 244.]

Shi king, 30 :—Dropping are the fruits from the plum-tree (*mei*). [Also 197, 210, 223, 358.]

LU KI :—The *mei* resembles the apricot, especially in the leaves. The fruit is dried and prepared as soup, or pickled. It is of a pleasant taste. [Compare also *infra*, 512.]

Shu king, 260 :—Be to me as the salt in the prunes (*mei*) in making agreeable soup.

Ch'un ts'iu [referring to B.C. 626] :—In the 12th month there fell hoar frost without killing the grass. Plum-trees (*mei*) bore their fruit.

V. supra, 227, 244. *Jap.*, 1779.

474.—鬱 *Yü*. This character in the *Shi king* [200] has the meaning "thickly wooded," but in the ode "Life in Pin" [231] it denotes a fruit which LÉGAZ calls the sparrow-plum. In the sixth month they eat the sparrow-plum (*yü*) and [wild] grapes.

MAO says it is a kind of 楝 *ti* [see 476]. K'UNG YING-TA :—A kind of 唐楝 *t'ang ti* [see 475].

LU KI :—The *yü* is a tree from 5 to 6 feet high. Its fruit is of the size of a plum (*li*), of a red colour and sweet taste.

P., XXXVI, 33, 郁李 *yü li* or 爵李 *tsio li*, ancient names found in the *Pen ts'ao king*. In the *Pie lu* it is called 鬱李 *yü li*. According to others, it is the 雀李 *tsio li* or sparrow-plum. LI SHI-CHEN says that the flowers of the *yü li* are of a rose colour, the fruit is like a small plum. He considers the *yü li* to be the same as 常楝 or 楝 [*Rh ya*, 306], but writes the first name 棠楝 *t'ang ti*.²² It is said to be the same as the 栒木 *yü mu* in the *Shan hai king*.

Under the name of *yü li* they cultivate at Peking *Prunus japonica*, Thbg. It flowers in January. Small, white buttons of double flowers, appearing before the leaves. It is figured under *yü li* in *Ch.* [XXXIII, 51]. A rude drawing of it is also found in the *K'iu huang* [LVIII, 9]. The bitter kernels of the fruit are sold in the apothecaries' shops.

²² This is not to be confounded with 楝 *ti t'ang*, which in China as well as in Japan is the name for *Kerria japonica*, DC. *Ch.*, XXVI, 12. *Amans. exot.*, 844, *teite*. SIEB. & ZUCC., *Flora japon.*, 1, 183, tab. 98.

Phon zo, LXXXVIII, 1, 郁李, *Prunus japonica*. [See also HOFFM. & SCHULTES, 461, and SIEB. & ZUCC., *Flora japon.*, I, 172, tab. 90.] The small red acid fruit is dried in Japan and eaten. The kernels used in medicine.

Jap., 1776. Comp. *supra*, 306, *infra*, 476, 477.

475.—唐棣 *T'ang ti*. LEGGE terms this likewise the sparrow-plum, also aspen plum.

Shi king, 35 :—How great is that luxuriance, those flowers of the sparrow-plum (*t'ang ti*) the flowers like those of the peach-tree and the plum (*li*). 201 :—On the mountains are the bushy sparrow-plums [the text has only 棣 *ti*. MAO explains that *t'ang ti* is meant].

CONF. *Analepts*, 90 :—How the flowers of the aspen plum (*t'ang ti*) flutter and turn.

Very different views are held by the Chinese commentators about this tree ; some say that the *t'ang ti* is a plum, others make it to be an aspen.

The *Rh ya* [305] has 唐棣 *t'ang ti*, also called 移 *i*. KUO P'ao explains that it is a tree resembling the 白楊 *pai yang* or white poplar, and is also called 扶 *fu* *i*. The *Shuo wen* writes the above name 棠棣 *t'ang ti* and identifies it with *i*.

MAO explains the *t'ang ti* in the *Shi king* by *i*, as in the *Rh ya*. P. [XXXVb, 29] refers the *t'ang ti* of the *Shi* to the tree 扶移 *fu i*, also called 移楊 *i yang* (*i* poplar). LI SHI-CHEN [after the *Ku kin chu*, 4th century] describes it as a kind of poplar or aspen with quivering leaves.

Ch. XXXV, 4 gives *fu i* as a synonym for 白楊 *pai yang*, the white poplar. The drawing in the *Phon zo* [LXXXIV, 24] under 扶移 seems to represent a *Populus*, but according to SIEBOLD [*Flora Japon*, I, 87, tab. 42, and *icones. ined.* III] this Chinese name is in Japan applied to *Aronia asiatica*, a small tree of the order *Pomaceae*, with white flowers in racemes. It is said to have been introduced into Japan from China.

Other Chinese commentators take the *t'ang ti* of the *Shi* to be a kind of plum. LU KI says it is the same as the 奧李 *yā li* (grape plum), also called 雀梅 *tsio mei* (sparrow-plum), and 車下李 *ch'e hia li* (plum under the cart). It grows in the mountains, its flowers are both white and red. The fruit ripens in the sixth month, it is as large as a plum and edible.

LEGGE agrees with this view that the *t'ang ti* was a kind of plum, for evidently from the text of the *Shi* it may be concluded that it is akin to the peach and the plum.

Aronia asiatica = *Amelanchier Canadensis*, Torr. et Gray, var. *japonica*. *Jap.*, 132, with Chinese name 扶移. It occurs in Chekiang Province on the Tien-tai mountain, a beautiful tree when in flower. Fruit not seen.

476.—常棣 *Ch'ang ti*. LEGGE calls it the cherry.

Shi king, 250:—The flowers of the cherry tree (*chang ti*) are they not gorgeously displayed? 260:—Flowers of the cherry tree. In this passage the Chinese text has only the first character of the name 常之華 (*chang flowers*).

The *Rh ya* [306] has 常棣 or 棣. KUO P'ao explains that the fruit resembles the *ying t'ao* (cherry).

LU KI says:—According to the *Shuo wen* the *ch'ang ti* or *ti* is the same the 白棣 *pai ti* or white *ti*. The fruit resembles the plum (*li*) but is smaller, of the size of a *ying t'ao* (cherry) and of a white colour. It is now cultivated in the government gardens (官園). There is also the 赤棣 *ch'i ti* (red *ti*). It resembles the white *ti*. The leaves are like those of the *ts'z' yā* or spiny elm (*Hemiptelea*) but rather orbicular. The fruit is red like that of the *yā li* [see 474] but smaller; it ripens in the fifth month. The tree is very common in the north-western provinces.

LI SHI-CHEN makes this tree to be the same as the *yā li*, *Prunus japonica*, but writes 棠棣 *t'ang ti* instead of 常棣.

477.—含桃 *Han t'ao*, an ancient name for the cherry.

Li ki, I, 273 [*Yü ling*]:—Second month of summer. The Son of Heaven eats millet along with pullets and cherries (*han t'ao*). The commentary explains *han t'ao* by 櫻桃 *ying t'ao*, which is now the common Chinese name for cherries. [*V. supra*, *Rh ya*, 266].

According to the *Index Floræ sinensis* there are 9 species of *Prunus* belonging to the section *Cerasus* or cherry, now known in China, including the already mentioned *Pr. japonica*.

The *Pr. pseudocerasus*, Lindl., or Bastard Cherry, was introduced into England, it seems, from Canton, by Dr. REEVES, in 1822. He calls it *ying to*. [See *Transact. Hort. Soc. London*, VI, 1826, p. 90.] This differs from our common cherry, in having its flowers growing in racemes, not fascicles, and in their stalks being hairy. The Double Chinese Cherry, *Pr. serratula*, Lindl., introduced likewise by REEVES under the name of *ying to* (evidently *ying t'ao*) proved afterwards to be identical with *Pr. pseudocerasus*.

In 1879, I sent herbarium specimens with flowers and fruits of the cherry cultivated at Peking under the name of *ying t'ao* to the late J. DECAISNE, Paris. He declared them to be *Pr. pseudocerasus*. But Mr. MAXIMOWICZ, of St. Petersburg, to whom I had forwarded specimens from the same tree, found that they belonged to a distinct species, the *Pr. pauciflora*, Bge., which, however, seems closely allied to the former. This cherry in its appearance, colour and taste resembles much our common sour cherry.

P., XXX, 41, *ying t'ao*. Good description. *Kiu huang*, LVIII, 1; *Ch.*, XXXII, 17.

In May another cherry is offered for sale at Peking under the name of *shan ying t'ao* or mountain cherry. The fruit, produced on a very short stalk, is of a pale red, covered with

soft hairs; it has a peculiar flavour. This is the *Prunus tomentosa*, Thbg. It is found wild and cultivated in the Peking mountains, and is well known also in Japan.

P., XXX, 43, *shan ying t'ao*. The downy appearance of the fruit noticed. *Ch.*, XXXII, 18, *shan ying t'ao*. Bad drawing not characteristic.

Aman. exot., 799:—櫻 *Je, jo, o*, vulgo *sakira*. *Cerasus flore simplici, fructu austero*. This is *Pr. pseudocerasus*, according to MAXIMOWICZ. [See also HOFFM. & SCHULTES, 466.]

The Chinese names 櫻桃 and 梅桃 seem to be more generally applied in Japan to *Pr. tomentosa*, while 山櫻桃 (mountain cherry) denotes *Pr. pseudocerasus* and also *Pr. incisa*. [Comp. SIEB. & ZUCC., *Flora japon.*, I, 31, tab. 22; HOFFM. & SCHULTES, 468; *Phou zo*, LXVI, 5-8.]

E., 279, family 櫻桃, with figure and all the names of *supra*, 266.

S., XI, 22. *Sm.*, 58. *Jap.*, 1782.

Jap., 1786, *Prunus tomentosa*, Thbg., 梅桃.

Prunus communis, Huds., is mentioned *Jap.*, 1773, as 扁桃.

478.—木瓜 *Mu kua*, the tree-melon of the Classics, is still the common Chinese name for the Quince, *Cydonia sinensis*, Thouin. This fruit is oblong and of enormous size.

Chou li, II, 581:—Ouvriers des arcs. Le coignassier (木瓜). The wood of the quince tree used for making bows. [See quotation in 501, note.]

Shi king, 107:—*Mu kua*, title of an ode. LÉGGE takes the *mu kua* to be the *Papaya*, but he is mistaken; the *mu kua* of the Classics is undoubtedly the quince.²²

²² *Carica Papaya*, L., the melon-tree, is a native of tropical America. It is now cultivated everywhere in tropical Asia, and known also in Southern China. Its large melon-shaped fruit is called 木瓜 *mu kua* at Canton. [See *W.D.*, 466]. The *Ch.*, XXXI, 34, gives a good drawing of this tree under the name of 番瓜 *fan kua* (foreign melon).

See the *Rh ya*, 231 :—*Mon* or *mu kna*. *P.*, XXX, 6, *mu kna*. *Kin kuang*, LVIII, 5. *Ch.*, XXXII, 23.

Amoen. erot., 844 :—木瓜 *Arbuseula* *Acacie germanicæ* *ficiæ*, flore pentapetalo rubro pomi nostratis, calyce quinque labiis rotundis in herbeo rubentibus, staminibusque incarnatis plurimis decorato in fructum carnosum excrecente. This is, according to MAXIMOWICZ, *Chenomeles japonica*, Lindl. (*Cydonia japonica*, Pers.). *Phon zo*, LXIII, 7, 木瓜. *Chænom. japon.*

Jap., 478, *Pyrus japonica*, Thbg., var. *genuina*, Max., 木瓜.

479.—木桃 *Mu tao* (wood-peach). This name occurs in the *Shi king* [108]. LEGGE translates :—There was presented to me a peach (*mu tao*). But a peach is not meant here.

In *P.* [XXX, 10] *mu tao* is given as a synonym for 楂子 *cha tsz'*, name of a fruit which is mentioned in the *Rh ya* [331] and regarding which the *Shuo wen* says that it resembles a pear, but is of a sour taste. LI SHI-CHEN compares it to the *mu kna* or quince, but it is smaller, of a yellowish colour, sour and harsh.

The drawing in the *Phon zo* [LXIII, 10] under 楂子 refers perhaps to *Cydonia japonica*.

In the *Li ki* [I, 461], where the fruits eaten by the ancient Chinese are enumerated [*r. infra*, 484, note], there appears the name 楂 *cha* [haws, according to LEGGE] together with 梨 *li* (the pear), and farther on we read [p. 462] 楂 (狙) and pears (梨) had the insects drilled out of them. The 狙 is repeatedly mentioned in the *Shan hai king*, and Kuo P'o explains that it is a fruit resembling the pear, but sour and harsh. According to the ancient dictionary *Kuang yün* [Tang dynasty], the character 狙 is identical with 楂, and 楂 is also the same.

It cannot be decided whether the *cha* was a quince or a hawthorn (*Crataegus*), or perhaps another *Pomacea*. The

山楂 *shan cha* or mountain *cha* is *Crataegus*. [V. *supra*, *Rh ya*, 244.]

480.—Besides the wood-peach, the *Shi king* mentions also a wood-plum 木李 *mu li*. LEGGE translates [108]:—There was presented to me a plum. The Chinese text has *mu li*.

In P. [XXX, 10] the *mu li* or wood-plum of the *Shi* is identified with the 榲桲 *ming cha*, also called 木梨 *mu li*, wood-pear. LI SHI-CHEN states that this fruit is a kind of *mu kua* or quince, but larger than the common *mu kua*; it is of a yellow colour. The *ming cha* is not figured in *Ch*.

Phon zo, LXIII, 11, 12, 榲桲. The drawing seems to represent *Cydonia vulgaris*, with a large fruit. *Ibidem* [13, 14] a figure of *Cydonia vulgaris* is given, with the Chinese name 榲桲, in accordance with KEMPFER.²⁴

Jap., 1823, *Pyrus chinensis*, Poir., 榲桲.

" 1828, " *japonica*, Thbg., var. *pygmaea*, Max., 榲子.

" 1825, " *Cydonia*, L., 榲桲.

" 1822, *Pyrus baccata*, L., var. *mandshurica*, Max., 棠梨.

[Comp *Sm.*, 107.]

481.—梨 *Li* is the common name for the Pear. The pears cultivated in Northern China for their fruits are varieties of our *Pyrus communis*, *P. sinensis*, Lindl., (*P. ussuriensis*) and probably some other species. The best is the 白梨 *pai li* or white pear. The fruit is small, globular-shaped,

²⁴ *Amoen. exot.*, 806, 榲桲 *umbatz*, vulgo *marmerr.* *Malus Cydonia* fructu oblongo, magno, uterque pyriformi. A Lusitania cum nomine regionis illata est. This is, according to MAXIMOWICZ, *Cydonia vulgaris*.

Ch. [XXX, 2] under the above Chinese name (*uen p'o*) represents a *Cydonia* with a small fruit. At Peking the name *uen p'o* is applied to the small fruit of the wild-growing *Crataegus pinnatifida*, Bge., (the cultivated form with large fruit is *shan li hung*, *v. supra*, 244). The account given in P. [XXX, 11] of the *uen p'o* seems to refer to *Crataegus* rather than to a quince.

yellowish white, has the appearance of an apple. It is very savoury. Large pears of the ordinary shape are produced in Shantung and Manchuria, but they are much inferior to our European pears.

Li ki, I, 461, 462 :—The pear mentioned among the fruits eaten by the ancient Chinese [see *infra*, 484, note]. The name of the pear occurs in the *Shan hai king*, and in the *Rh ya* [301, 331].

P., XXX, 1, li. *Kiu huang*, LVIII, 4. *Ch.*, XXXII, 31.

Amoen. exot., 800 :—梨 *ri*, vulgo *nas*. *Pyrus sativa*, fructu magno duro; cujus in hac regione saltem triplex datur varietas.

Phon zo, LXIII, 2, 3. Several varieties of the pear figured. SIEBOLD [*Syn. plant. aron. jap.*, 349] states that the pear is not indigenous to Japan, but has been introduced from China.

482.—甘棠 *Kan t'ang* (sweet t'ang). LEGGE calls it the sweet pear tree. *Shi king*, 26 :—The umbrageous sweet pear tree.

杜 *Tu* is the name of another sort of pear tree mentioned in the *Shi*. LEGGE terms it the russet pear tree.

Shi king, 181, 185 :—The solitary russet pear tree. Its leaves are luxuriant. 265 :—Solitary stands the russet pear tree with its fruit so bright.

In the *Shan hai king* we meet with the names 棠 *t'ang* and 沙棠 *sha t'ang*.

In the *Rh ya* [242] we have 杜 *tu* same as 甘棠 *kan t'ang*, and [254] it is stated that *tu* is the red and *t'ang* the white sort.

LU KI :—The *kan t'ang* is also called 杜梨 *tu li* or 赤棠 *chi t'ang* (red t'ang). There are two sorts of *t'ang*, the white and the red. The white is a good fruit and is also called *kan t'ang* or sweet t'ang. It is of a pleasant sourish taste and

mucilaginous, whilst the fruit of the red *t'ang* is harsh and acid. There is a proverb saying "harsh as a *tu*." But the wood of the red *t'ang* is tough and fit for making bows.

P., XXX, 5, *t'ang li* or *kan li*. LI SHI-CHEN says that the *t'ang li* is a white pear, found everywhere in the mountains. *Ch.*, XXXI, 40. The drawing represents a tree; evidently a *Pyrus* is intended, with a small globular fruit. *Kin huang*, LVI, 14, rude drawing.

It seems that the above-mentioned ancient names were applied to various wild-growing and cultivated species of *Pyrus* with small fruits, pears and crab apples, of which we know a considerable number in China and Japan.

There is in the Peking mountains a wild pear, the *Pyrus sinensis*, Lindl., (*P. ussuriensis*, Maxim.), which bears a globular fruit, about one inch in diameter, of a greenish brown colour, covered with little warts. Late in autumn, after frost, this fruit is offered for sale at Peking. It is known by the name 棠杜梨 *t'ang tu li*; its taste is not unpleasant.

The name 杜梨 *tu li* at Peking is applied to the *Pyrus betulaefolia*, Bge., a species met with wild in the mountains and much cultivated in gardens for its beautiful flowers, which in April appear on the tree in great profusion, and for its little brown fruit of the size of a small cherry, which is eaten by the Chinese. Taste not unpleasant.

The *Pyrus baccata*, L., with a red edible fruit of the size of a pea, is common in the Peking mountains. It is called there 山荆子 *shan king tsz*. But this is merely a local name. Its book name is, it seems, 林檎 *lin kin*, which, as has been stated above, under 301, is not a classical appellation.

According to HENRY [*l.c.*, 446] in Hupei the name *tang li* is applied to *Pyrus betulaefolia*.

In the *Phon zo* [LXIII, 5] the 赤棠 or red *t'ang* is *Pyrus toringo*, Sieb., (hitherto not found in China). *Ibidem*, 5, under 棠梨 a *Pyrus* with a pisiform fruit is figured.

E., 233, family 棠梨, with figure of a pear tree with small fruit. *S.*, VIII, 37.

Jap., 1822, *Pyrus baccata*, L., var. *mandschurica*, Max., 棠梨.
[Compare *Sm.*, 107].

" 1829, " *Malus*, L., var. *tomentosa*, Koch, 林檎.

" 1830, " *sambucifolia*, Cham. et Schlecht., 花楸樹.

" 1831, " *spectabilis*, Ait., 海棠.

483.—Finally the *Shi king* mentions a sort of pear under the name of 榘 *sui*. LEGGE calls it simply the wild pear tree.

Shi king, 201 :—In the low, wet grounds are the high, wild pear trees.

See the *Rh ya* [265], *sui* or 羅. KUO P'IO says that the fruit resembles a pear. The *Shuo wen* writes 榘.

LU KI :—The *sui* is also called 赤羅 *ch'i lo* or 山梨 *shan li*. The people now call it 楊榘 *yang sui* or 鹿梨 *lu li* (deer's pear), also 鼠梨 *shu li* (rat's pear). The fruit looks like a small pear and is sweet. This tree grows in 齊 Ts'i in the prefecture of 廣饒 (now Lo-an hien in Shantung), in 魯 Lu (South-western Shantung), in 河內 Ho nei (Southern Shansi) and in the northern mountains; the people cultivate it also. The fruit has a delicate flavour not unlike that of the pear.

P., XXX, 4, 鹿梨 *lu li*. The above names given as synonyms. LI SHI-CHEN says that it is a common tree in the mountains, yielding a beautiful veined wood.

SIEBOLD, *Icon. ined.*, III, 鹿梨. A *Pyrus* with a small red fruit. See also the drawing under the same Chinese name in the *Phon zo* [LXIII, 3]. According to GEERTS [*Japan Woods*] this Chinese name in Japan is applied to *Sorbus aucuparia*, L. But the account given by LU KI regarding the *sui* or *lu li* does not permit this identification.

Lu li is a synonym of 梨 in *E.*, 231, family 梨.

484.—棗 *Tsao*. This is the classical and common name for the Chinese jujube, *Zizyphus vulgaris*, Lam., cultivated in China from time immemorial it seems. It has produced

many varieties. Europeans in China erroneously call this fruit the date, as also does LEGGE. The Japanese jujubes are likewise furnished by this species, which is also much cultivated for its fruit in the countries situated on the Mediterranean Sea.

Shi king, 231 ["Life in Pin"]:—In the eighth month they knock down the dates (*tsao*).

Hia Calendar, 93:—Eighth month. Cut open are the jujubes (劉棗).

Li ki, I, 119:—Jujube dates (*tsao*) used by women for presents of introduction. [I, 451, 461]:—Fruits eaten by the ancient Chinese.²⁵

Chou li, I, 103:—Fruits presented to the Son of Heaven. [V. *supra*, 470]. II, 194:—Fire from the jujube wood. [See quotation in 528, note.] *Rh ya*, 272-282:—Names of various sorts of jujubes. [See also 331.] The *tsao* is frequently mentioned in the *Shan hai king*.

²⁵ The fruits enumerated there are, according to LEGGE's translation:—

- 1.—Small chestnuts [栲 *v. infra*, 493].
- 2.—Water-caltrops [菱 *v. supra*, 397].
- 3.—*Hovenia dulcis* [棋 *v. infra*, 489].
- 4.—*Zizyphus* [棗].
- 5.—Chestnuts [栗 *v. infra*, 494].
- 6.—Hazel-nuts [榛 *v. infra*, 496].
- 7.—Persimmons [柿 *v. infra*, 491].
- 8.—Cucumbers [瓜. I should rather think melons are meant. V. *supra*, 382].
- 9.—Peaches [桃 *v. supra*, 470].
- 10.—Plums [李 *v. supra*, 472].
- 11.—Ballaces [梅 *v. supra*, 473].
- 12.—Almonds [杏 *apricota*, *v. supra*, 471].
- 13.—Haws [楂 *v. supra*, 479].
- 14.—Pears [梨 *v. supra*, 481].

P., XXIX, 31. *tsao*. *Ch.*, XXXII, 1. *Kin huang*, LVIII, 17.

Amoen. exot., 789, 棗 *soo*, vulgo *naulsme*. *Paliurus*, Prosp. Alp. fructu pruni hortensis magnitudine, per maturitatem croceo, carne austera, saccharo conditi solito, ossiculo olivæ utrinque acuto.

Phon zo, LXII, 19-21. Several varieties of *Zizyphus vulgaris*. [See also SIRBOLD, *Syn. plant. æcon. jap.*, 262.]

Mencius, 373 :—Sheep dates mentioned, 羊棗 *yang tsao*. So called from the resemblance of the fruit to sheep's dirt. [Compare the *Rh ya*, 277.]

292.—MENCIUS said :—Here is a plantation-keeper who neglects his *tsu* [*Sterculia*, v. *infra*, 516] and his *kia* [v. 292, 508] and cultivates his sour wild dates; he is a poor plantation-keeper.

What LEGGE translates by "sour wild dates" is 棘棗 *rh ki* in the text. The first character is explained in the *Rh ya* [275] by *suan tsao* (sour jujube); regarding *ki*, see the next.

The 酸棗 *suan tsao* at Peking is the wild, spinous form of *Zizyphus vulgaris*, which in its cultivated state is an unarmed tree with a large oblong spheroidal fruit, containing an oblong pointed stone. The wild form is a very thorny shrub which produces small globular, sour, edible fruits, with a globular stone. It is very like the *Z. lotus* of Northern Africa. It is very common in the Peking plain and in the mountains. The natives use it for fences. BRUNGE says regarding this shrub "spinosissima et molestissima."

V. supra, 272. *Jap.*, 2402.

H., 498, *Suan tsao*, *Diospyros Lotus*, L., which is *Jap.*, 810, 君遷子. *H.*, 426, gives still another (local) Chinese name for this tree.

485.—棘 *Ki*. This character, coupled in MENCIUS with the name of the thorny jujube [*see the preceding*], has, as LEGGE states, properly the meaning "thorns." But in the *Chou li* and in the *Shi king*, where it frequently occurs, it denotes, according to the ancient commentators, a jujube tree. MAO explains it by *tsao* (jujube); the *Shuo wen* says the *ki* is a small jujube which grows in a bushy manner. It would seem that the aforesaid spiny variety of the jujube is meant. The *Ku kin chu* [4th century] states that the fruit of the *ki* is called 棗 *tsao*.

Shi king, 50:—The genial wind from the south blows on the heart of that jujube tree (*ki*). 166:—Of the jujube tree (*ki*) in the garden the fruits may be used as food. 183:—The wild geese settle on the bushy jujube tree (*ki*). 186:—The dolichos grows covering the jujube tree (*ki*). 198:—Yellow birds on jujube trees. 210:—At the gate there are jujube trees. 223, 276, 394:—Jujube trees. 353:—Spoons of thornwood 棘匕.

The *ki* is frequently mentioned in the *Shan hai king*.

Tso chuan, 463:—[B.C. 558.] WOO LI, clothed with rushes, forced his way through briars and thorns, 荆棘. The first character denotes *Vitex* [*v. infra*, 521].

We read in the *Chou li* [II, 347, 348] that in the outer court of audience there were planted nine 棘 *ki* trees, and under them the different ministers of the court had their places. [*See quotation in 546.*]

Li ki, I, 236:—The Grand Minister of Crime heard the report of the judgment given in the outer court under the *Zizyphus* tree 棘木下. This phrase indicates that a tree is meant, not a shrub. II, 400:—The game of pitch-pot, played anciently, a kind of archery, with darts instead of arrows and the hand instead of a bow. It is there said:—The arrows are made of mulberry wood [*see 501*] or from the *Zizyphus* (*ki*), without the bark being removed.

The 詩 站, quoted in *K.D.*, says regarding the 棘:—It resembles the *tsao* (jujube), but is very thorny. Its wood is hard and of a red colour. As a shrub it forms thickets, and the people use it for fences. After many years the shrub loses its thorns, and then may attain the height of a *tsao* tree. There is a variety of the *ki*, the wood of which is white. This is called 白棘 *pai ki*. Another variety, which produces sour fruits, is called 棘棘 *rh ki* or *suan tsao* [*r. supra*, 481].

From the above account we may conclude that the *ki* of the Classics was a jujube.

P., XXXVI, 24, *suan tsao* or *ki*; *ibidem*, 26, 白棘 *pai ki*. *Ch.*, XXXIII, 28. *Kiu huang*, LV, 2, rude drawings.

Phon zo, LXXXVII, 13, 酸棗, and 14, 白棘. Drawings not characteristic.

486.—橘 *kā* is one of the Chinese names applied to oranges. *W.D.* [457] says:—It comes nearer the generic term for oranges than any other word.

Shu king, 108 [Tribute of Yu]:—Province of Yang chou (Chekiang, Anhui, Kiangsi). Small oranges (*kā*) and pome-
loes [*yu*, see the next] produced there. K'UNG AN-K'UO explains:—The small sort is *kā*, the large is *yu*.

Chou li, II, 460:—See the quotation *infra*, 488. II, 581:—Ouvriers des arcs. L'oranger à petites oranges (*kā*) employé pour faire le corps de l'arc [see the quotation in 501, note].

The *kā* is repeatedly mentioned in the *Shan hai king*.

The *Shuo wen* says the *kā* is a fruit of Kiangnan (Kiangsi) furnished by an evergreen tree.

WILLIAMS says that 橘子 *kā tsz'* is a large bitterish orange or bigarade common in the north. I have seen this; it is cultivated at Peking in pots, and is the bitter orange. But the fruit brought to Peking from the southern provinces

under the name of *kā* resembles much the common sweet orange of Southern Europe. [Compare *P.*, XXX, 25, under *kā*, and *Ch.*, XXXII, 5.]

The Chinese have also other peculiar characters to designate various sorts of oranges. The 橙 *ch'eng*, likewise brought to Peking from the South, especially from Fuchou in Fukien, is an excellent orange, generally of large size, with a thin rind adhering closely to the pulp. The lobes of the pulp (carpels) do not separate. Europeans call this the coolie-orange, while the name of mandarin-orange or loose-jacket is applied to the smaller, sweet orange. Its skin when ripe is of a cinnabar red colour and adheres to the pulp by a few loose fibres. The lobes separate easily. At Peking it is called 紅橘 *hung kū* or 火橘 *huo kū* (red or fire orange), but its book name is 柑 *kan*, a character derived from 甘 *kan*, sweet. *P.* says it is very sweet and is produced especially in the Southern Provinces. This is the *Citrus nobilis* of LOUREIRO. LOUREIRO [*Flora cochin.*, 569] is mistaken, it seems, with respect to the Chinese names of the oranges, for he states that *C. nobilis* in Chinese is *tsem can*, and *C. aurantium*, *can xu*.

See regarding *ch'eng* and *kan*, *P.*, XXX, 34 and 32. *Ch.*, XXXI, 8, 7.

Amoen. exot., 801:—橘 *kitz*, vulgo *tatz banna*. *Malus Limonia*, fructu rotundo parvo, *mican* dicto, medulla vinosi saporis. SIEBOLD [*Syn. plant. æcon. jap.*, 309] refers the Japanese names *tatsibana* and *mican* to *Citrus nobilis*.

Amoen. exot., 800:—柑 *kan*, vulgo *kummi fo*. *Malus Aurantia*, folio majusculo, fructu mediocri to *mican* dicto.

Compare also the drawings of various sorts of oranges under the above Chinese names in the *Phon zo* [LXV, 1-13].

E., 226, family 柑, with good figure. *Jap.*, 615.

E., 227-229, family 橘, with figure of a *Citrus* and 12 names.

E., 230, family 橙, with good figure [*S.*, XI, 31]. This looks, however, like *C. nobilis*, and the figure to 226 like *C. aurantium*, agreeing with LOUREIRO, not with the present usage. To add to the confusion, *Jap.*, 608, *Citr. aurant.* is 柚.

E., 230, family 柚, with figure of a *Citrus*, but fruit too small for *pumelo*.

487.—柚 *Yu*. This is mentioned in the *Shu king* together with the preceding *kā*, or orange, and the commentary says that this is the larger sort. *Yu* even nowadays is a name applied in China to the *Pumelo*, *Citrus decumana*, L. This enormous fruit is now largely produced in Southern China. Amoy is famed for its pumeloes.

Rh ya, 236, *yu*; another name is *t'iao*.

P., XXX, 35, *yu*. Synonyms 壹柑 *hu kan* (jug orange), 朱欒 *chu luan*. LI SHI-CHEN says the fruit is as large as a gourd. *Ch.*, XXXII, 6, *yu*; *pumelo* figured. LOUREIRO, *Flora cochín.*, 571, *C. decumana*. Sinice *yeu xu*.

Amœn. exot., 801:—柚 *juu*, vulgo *aje tats banna*. *Malus Aurantia* fructu prægrandi, superficie scorbiculata inæquali.

SIEBOLD, *Syn. plant. œcon. jap.*, 308:—柚 *Citrus medica*, var. *juuos*; idem, *Icon. ined.*, II, and *ibidem*, 313, 朱欒, *Citrus Sabon* (same as *C. decumana*). The same in the *Phon zo* [LXV, 17, 18].

欒 *Yu* is the name of a tree repeatedly mentioned in the *Shan hai king*. Kuo P'o explains that it resembles the *kā* (orange), but the fruit is large, sour, has a thick rind.

The same tree is noticed by the philosopher LIE TSZ' [5th century B.C.] as an evergreen tree in the kingdoms of 吳 *Wu* and 楚 *Ch'u* (Chekiang and Hukuang), which bears a red, sour fruit. The ancient dictionary *Chen yān* says that this character *yu* is the same as 柚.

Jap., 610, *Citrus decumana*, L., 朱欒.

488.—枳 *Chi*. A tree or shrub of the orange tribe mentioned in the *Chou li* [II, 460]:—Lorsque les orangers

à fruits doux (橘) passent la rivière Honi (淮) et sont transplantés au nord, ils deviennent orangers à fruits aigres (枳).

The *chi* is mentioned in the *Shan hai king*. The character occurs there also coupled with 棘 thorns. K'uo P'o explains that it has thorns, which inflict wounds. The *Shuo wen* says the *chi* resembles the *kū* (orange).

P., XXXVI, 13, 枳實 *chi* fruit. The rind of this fruit is used as a medicine and called 枳殼 *chi k'io*. The ancient authors describe this plant as a very thorny shrub with fruits resembling the orange, but smaller and bitter. Ch., XXXIII, 44, rude drawing; small globular fruit; thorns. I suspect this is the *Citrus fusca* of LOUREIRO [*Flora cochin.*, 571]. *Citrus ramosissima* aculeata, folia ingrati odoris . . . bacca globosa, 2 pollicaris, aspera, fusco-viridis . . . pulpa subamara, ingrata. Virtus corticis integri baccarum: attenuans, deobstruens, eccoprotica. Sinice *chi ken*.

Aurum, exot., 801:—枳 *Sai*, vulgo *karatats bauna*, aliis *gees* dictus. Frutex sylvestris spinosus trifolius . . . fructu mali aurantii tetrico, odoris ingrati. Detailed description with a drawing. Ex fructus siccato cortice admixtis speciebus aliis, decoquitur medicamentum celebre *ki koku* dictum, quo nomine vulgus ipsum quoque fructum appellat. This is, according to FRANCHET, the *Citrus trifoliata*, L., (*Pseudogle sepiaria*, Miq.). HEMSLEY [in the *Index Florae sin.*, iii] says that it is the same as *Egle sepiaria*, DC.

FRANCHET does not identify the plant represented in the *Phon zo* [LXXXVII, 6] under 枳, but he refers the *Citrus trifoliata* to the drawing [fol. 8] under 枸橘. SIEBOLD [*Icon. ined.*, II], same Chinese name, *Egle sepiaria*. SIEBOLD [*Syn. plant. æcon. jap.*, 307] *Egle sepiaria*, 臭橘, *gedsu*. Omnium sane fruticum ad sepos vivas aptissimum.

It seems that in Japan the above three Chinese names are all applied to the same plant, *Egyle sepium* or *Citrus trifoliata*. But the Chinese authors keep the latter two names apart for a plant distinct from the *chi*.

P., XXXVI, 20, 枸橘 *kou kâ*, also 臭橘 *ch'ou kâ* (stinking orange). The Chinese authors say that it is a very common shrub, resembling the orange tree. It is very thorny. The flowers are white, not fragrant. The fruit is globular, resembles that of the 枳 *chi*, but the rind is thinner, not fragrant. The people plant this shrub to form hedges.

Ch. [XXXV, 61] figures under *kou kâ* an *Aurantiaceæ* with long spines, large flowers and fruit of the size of a walnut. The *Kâ lu* (a treatise on oranges, of the 12th century) states that the *kou kâ* is much cultivated for hedges, and that its fruit is used as a medicine like that of the *chi*.

One of the two *Aurantiaceæ* noticed by the Chinese authors under the names of *chi* and *kou kâ* as distinct plants may perhaps be the *Triphasia trifoliata*, DC., (*Tr. aurantiola*, LOUREIRO, 189), a thorny bush indigenous to China as well as to Japan and cultivated at Kew [*Garden Chron.*, 1881, II, 654]. It has frequently been confounded with the *Citrus trifoliata*.

Jap., 611, *Citrus fusca*, Lour., 枳. *C.*, 133, 137. *S.*, IX, 28.

E., 254, family 枳.

" 609, " *bigaradia*, Duham, 臭橙.

" 612, " *japonica*, Thbg., var. *fructu globoso*, 金橘.

" 613, " *japonica*, Thbg., var. *fructu elliptico*, 金棗.

" 614, " *medica*, Risso, var. *chirocarpus*, Lour., 佛手柑.

489.—枳 *Kâ*. Mentioned as the name of a fruit in the *Li ki* [I, 461]. [*V. supra*, 484, note]. LEGG says it is *Hovenia dulcis*. Also in the *Li ki* [I, 119] noticed as a fruit used by women as a present of introduction.

The Chinese name for *Hovenia dulcis*, Thbg., used also in Japan, is properly 枳椇 *chi ka*, also written 枳枸 *chi kou*. *P.*, XXXI, 30. *Ch.*, XXXII, 38, good drawing, showing the characteristic recurved fleshy peduncles on which the small pea-like fruits are seated. These peduncles are eaten, not the fruit. The *Kiu kuang* [LV, 12] figures this tree under the name of 拐棗 *kuai tsao* (crooked jujube).

This tree was first figured and described under the above Chinese names in the *Amoen. exot.*, 808, 809. *Phon zo*, LXIX, 23. *SIEB. & ZUCC.*, *Flora japon.*, 1, 135, tab. 73, 74. *Hovenia dulcis* is a common tree in China and Japan.

E., 281, family 枳椇, with good figure and 14 names.

C., 129. *Sm.*, 115.

The 枸 of the *Shi king* [490] mentioned *E.*, 281, as a synonym, see *E.*, 251, family 枸, without figure.

Other *Rhamnaceae* are mentioned:—

Jap., 335, *Berchemia racemosa*, S. & Z., 山藤.

" 1869, *Rhamnus japonica*, Max., var. *genuina*, Max., 鼠李.

490.—枸 *Kou*. A plant mentioned in the *Shi king*. LEGGE says that in the Japanese plates it is the *Hovenia dulcis*.

Shi king, 273:—On the hills of the south is the *kou*.

MAO explains 枸 by 枳枸 *chi kou* (*Hovenia dulcis*). The *Shuo wen* says the *kou* is a tree (of the fruit) of which a sauce is made. It grows in Shu (Szechuan).

LU KI:—The *kou* is a mountain tree. It resembles the 榲 *tu* (*Eriobotrya*). It is also called 枸骨 *kou ku*, is of the size of the white poplar. The wood is white and veined; boxes can be made of it. The branches are crooked. The fruits are some inches long, like a finger, seated at the extremities of the branches; they are of a pleasant, sweet taste and ripen in the 8th or 9th month; the best are found in Kiangnan. This tree is now planted in the government

gardens [今官園種. LEGGE translates :—Wealthy men are fond of planting it in the gardens. *Kuan yān* may also be translated by "gardens of the officers"]. They call it 木蜜 *mu mi* or tree honey, also 枳枸 *chi kou*.

Hovenia dulcis may be intended in the above vague description. In *P.*, *mu mi* and *chi kou* are given as names for this tree. But the name 枸骨 *kou ku* in Japan as well as in China is applied to an *Ilex*. [*P.*, XXXVI, 40. *Ch.*, XXXV, 50].

Aucun. erot., 781, 枸骨 *ojo*, vulgo *tsuge*. *Buxus arborescens*, etc. MAXIMOWICZ thinks that this is probably *Ilex subpuberula*, Miq. The Chinese drawing in *Ch.* looks rather like *I. aquifolium*.

E., 306, family 衛矛, with figure of a small tree armed with long spines. Leaves entire, certainly not *Ilex cornuta*.

Sm., 114.

E., 251, v. 489.

E., 154, family 麻黃, mentions 狗骨 as a synonym of *Ephedra*.

Of *Ilicinae* with Chinese names :—

Jap., 1127, *Ilex cornuta*, L.f., 狗骨 (支那産).

" 1130, " *integra*, Thbg., 細葉冬青.

" 1131, " *latifolia*, Thbg., 娑羅樹.

" 1134, " *pedunculosa*, Miq., 冬青.

" 1138, " *Sieboldi*, Miq., 落霜紅.

491.—The 柿 *shi* is mentioned in the *Li ki* [I, 461] among the fruits eaten by the ancient Chinese. [I. *supra*, 484, note.] The *Shuo wen* explains *shi* by red fruit.

This is the Chinese persimmon, *Diospyros*. According to NAUDIN [*Remarques au sujet des Plaqueminiers*] the numerous varieties of this favorite fruit of the Chinese belong to two species, *D. sinensis*, Blume, (*D. Kaki*, Lin. fil.) and *D. Schütze*, Bge. The Japanese cultivate a third species, the *D. Kämpferi*, Naudin, first described and figured by

KÄMPFER [*Aman. esot.*, 805, 806] 柿 *si*, vulgo *kaki*. *Ficus hortensis*, fractu ossiculato eduli, folio Pyri, etc.

P., XXX, 17, *shi*. *Ch.*, XXXII, 33. *Kiu huang*, LVIII, 3; good drawing.

E., 234, family 柿, with good figure. *Jap.*, 809.

Jap., 810, *Diospyros Lotus*, L. [*V. supra*, 484.]

492.—奧 *Yā*. LEGGE translates this character correctly by grapes. It denotes wild vine.

Shi king, 231 ["Life in Pin"] :—In the sixth month they eat the grapes.

MAO explains *yā* by 蔓奧 *ying yā*, as does also the *Shuo wen*. The *Kuang yu* calls it 燕奧 *yen yā* or 蔓舌 *ying she*.

P., XXXIII, 9, *ying yā*. The Chinese authors quoted [7th and 9th centuries] say that the *ying yā*, resembles the 葡萄 *p'u t'ao* or common grape,²⁶ but the berries are smaller. They are of a sour and sweet taste and are also called 野葡萄 *ye p'u t'ao*, wild grape.

There are in the Peking mountains two kinds of wild grape with edible black berries of a sweet taste and the size of black currants, the *Vitis labrusca*, L., var. *piceifolia*, Bge., and the *V. bryoniifolia*, Bge. Both these vines are called *ye p'u t'ao* by the natives.

Compare under the above names the drawings *Ch.*, XXXII, 3, and *Kiu huang*, LVIII, 12.

SIEBOLD, *Syn. plant. japon.*, 241 :—*Vitis flexuosa*, Thbg. *nobudoo*, 蔓奧. Sponte ubique crescit, fructibus parvis, nigris, sapidis onusta. HOFFM. & SCHULTES, 624. Same Chinese name. *Vitis piceifolia*, Bge. *Phou zo* [LXXI, 13] same Chinese name, *Vitis*, not determined by FRANCHET.

²⁶ The true vine, *Vitis vinifera*, L., now extensively cultivated in the northern part of China, was introduced into China from Western Asia, in about B.C. 125, and is known since that time under the name of *p'u t'ao*. [See *Botan. sin.* I, 25.]

E., 113, family 葡萄. with good figure of *Vitis vinifera*, and 11 names. *S.*, XI, 18.

E., 142, family 蓼 蓼, with good figure of a wild grape.
V. supra, 453, 182.

493.—蓼 楚 *Ch'ang ch'u*. Name of an ode in the *Shi king*. LEGGE says that *ch'ang ch'u* is the Carambola tree.

217.—In the low, wet grounds is the carambola tree; soft and pliant are its branches.

This plant is mentioned in the *Rh ya* [198]. Kuo P'o says it is the 羊桃 *yang t'ao* (goat's peach). The same is said in the *Shuo wen*.

LU KI:—The *ch'ang ch'u* is now called *yang t'ao*. Its leaves are long and narrow, its flowers of a purplish red, and its branches so weak, that when they are more than a foot long, they go creeping along on the grass. The people remove the rind of the stem near the root, after placing it in hot ashes, and make pencil-tubes of it.

A notice of the same plant is found in *P.*, XVIIIb, 37, under the head of 羊桃 *yang t'ao*, which is identified there with the *ch'ang ch'u* of the *Shi king* and the *Rh ya*. The name *yang t'ao* is from the *Pen ts'ao king*. LA SHI-CHEN describes it as a plant with a weak creeping stem of the thickness of a finger, large leaves like the palm of the hand, white (downy) on the under side, resembling those of the *Bahmeria* but roundish. The branches when steeped in water become viscid. *Ch.* [XXII, 42, 43] under the name of *yang t'ao*, figures two quite different herbaceous plants; bad drawings.

The *yang t'ao* of *P.* is certainly not *Arerhoo Carambola*, and the ancient commentators have also not meant to identify the *ch'ang ch'u* of the Classics with the *Carambola*, a tropical tree, which succeeds well in the southern provinces of China, but was hardly even known in the north. WILLIAMS [*Dict.*, 28] and LEGGE have been misled by the name *yang t'ao*, which at Canton is applied

to the *Carambola*, or Chinese gooseberry as it is called by Europeans.²⁷

I may observe that the name *yang t'ao* is also applied in China to *Actinidia chinensis*, Pl., a climbing shrub with edible fruit about the size of a plum. [See HENRY, *l.c.*, 544]. It is well figured in *Ch.* [XXXI, 21], where the names *yang t'ao* and 獼猴桃 *mi hou t'ou* (monkey's peach) are given. *P.*, XXXIII, 10.

SIEBOLD, *Icon. ined. jap.*, II, 獼猴桃, *Actinidia rufo*, Planch. *Phon zo*, LXXI, 15, 16. Same Chinese name, *Actinidia arguta*, Planch.

494.—栗 *Li* (the chestnut). This character was originally written 栗. The *Shuo wen* explains that it is intended to represent the fruits hanging down. The Chinese chestnut is the same as that cultivated in Europe, *Castanea vulgaris*, Lam. It is grown throughout the empire. It is frequently mentioned in the Classics.

Shi king, 177, 190:—In the low, wet grounds are the chestnuts. 358:—On the mountain are the chestnut trees. 237:—The bitter gourds hanging from the branches of the chestnut tree. 81:—Duke Wan [7th century B.C.] built the mansion at T'oo (楚). He planted about it hazel (榛) and chestnut trees and other trees.

²⁷ The first Chinese author who mentions the *Carambola* and describes it quite correctly is KI HAN, in the *Nan fang ts'ao mu chuang* [3rd century. See *Botan. sin.*, I, 38]. It is there termed 五食子 *wu lien tsz'*, which, as the author explains, means five ridges and refers to the shape of the fruit, which is said to be very acid. LI SHI-CHEN [in *P.*, XXXI, 10] likewise gives a good description of the *Carambola* fruit under the above name, and adds that in Min (Fukien) it is called 陽桃 *yang t'ao*. He compares the shape of the fruit with a stone roller used by Chinese farmers for rolling down the fields when sown. A good drawing of the *Carambola* (*Ch.*, XXXI, 45, *wu lien*. [See also *Phon zo*, LXVII, 14.]

CONF. *Analecta*, 26 :—Altars of the spirits of the land (社). The Hia [dynasty, B.C. 2205-1766] used the pine tree (松), the Yin [B.C. 1766-1122] used the cypress (柏), and the men of the Chou [B.C. 1122-249] the chestnut.

The commentary says :—These trees were planted by the founders of the several dynasties about the altars of the spirits of the land (土地神).

We read in the *Chou li* [I, 193] :—Le grand directeur des multitudes (大司徒) dispose les murs de l'enceinte consacrée au génie de la terre et à celui des céréales. Il les constitue seigneurs des champs, en plantant pour représenter chaque génie l'arbre qui convient au terrain. Commentator B. (CHENG HŪAN) :—Les arbres convenables furent successivement le pin (松), le cyprès (柏), le châtaignier.

Chou li, I, 108 :—The chestnut mentioned among the fruits presented to the Son of Heaven. [See quotation *supra*, 470.]

Li ki, I, 119 :—Chestnuts used as a present of introduction by women. I, 461, 451. [See fruits eaten by the ancient Chinese, *supra*, 484, note.]

The chestnut is repeatedly mentioned in the *Shan hai king*, but not in the text of the *Rh ya*.

P., XXIX, 28, li. Ch. XXXII, 15, li. Well figured.

Amoen. exot., 816 :—栗 *riit*z, vulgo *kuri*. *Castanea sativa vulgaris*, alia fructu majore, alia minori. *Phon zo*, LXII, 14, 15.

E., 222, family 栗, with good figure and 12 names, including *infra*, 495, except 櫟.

H., 226-228, are all mentioned as synonyms, except 鉤栗, which is a *Quercus*, synonym of 櫟. E., 225. H., 95.

S., XI, 19. Sm., 60. C., 707. A., XV, 175. The latter *C. chinensis*, Hcc.

Jap., 537, *C. vulgaris*, var. *japonica*, DC., 栗.

495.—**橘** *Rh.* This is mentioned in the *Li ki* [I, 461] among the fruits eaten by the ancient Chinese. [See quotation in 484, note.] LEGGE translates *rh* by small chestnuts.

Rh ya, 233, **橘**, same as **橘** *lie*. KUO PRO explains:—Small chestnuts.

The character *lie* occurs in the *Shi king* [450]. MAO understands it of *rh* as in the *Rh ya*, but CHU HI takes it as trees growing in rows, and thus it is translated by LEGGE.

LU KI:—The *lie* is the same as the *rh*. Leaves like those of the elm. Veined, strong, pliable wood, of a red colour, fit for making thills of carriages.

The Chinese tree which bears the small chestnut is figured in *Ch.* [XXXII, 16] under **茅栗** *mao li*, and is also noticed in *P.* at the end of the article *li*, the common chestnut. The *mao li* is likewise spoken of by LU KI as producing the small chestnut.

CL. ABEL, in 1816, saw small chestnuts exposed for sale near the Poyang lake. They were not larger than the common bon nut [*Journey in the Interior of China*, 163, 166]. FORTUNE [*Res. am. Chin.*, 51, 144] met with this small chestnut in the hills near Ningpo. He says:—It is a delicious little kind, bearing fruit about the size and form of our common hazel-nut. This was introduced into England and India [*Garden Chron.*, 1860, 170]. FATHER DAVID notices small chestnuts, of the size of cherries, produced on dwarf trees near Kinkiang [*Nouv. Arch. Mus. hist. nat.*, VIII, 33]. [Compare also HENRY, *l.c.*, 227.]

The same small chestnuts are also produced in Japan. See *Garden Chron.*, 1875, 270, Japanese Edibles exhibited at London, 1873. Chestnuts about the size of a small kidney bean. These small Japanese chestnuts are figured in the *P'ho zo* [LXI, 16] under **茅栗**.

E., 222, family **栗**, a synonym; also written **毛栗**. *A.*, XV, 175, **茅**, *Quercus cornu*, Lour.

496.—榛 *Chen*. The hazel-nut. It is repeatedly mentioned in the Classics. There is an ancient character, 栎 or 栎, which the *Kuang ya* dictionary says is the same as *chen*. But the *Shuo wen* states that it is a fruit like a small chestnut, keeping 榛 apart as the name of a tree, while the *Kuang ya* identifies 栎 with the chestnut.

Shi king, 62 :—The hazel (*chen*) grows on the hill. 81 :—Hazels planted by Duke WAN. [See the quotation under 494.] 224 :—Young doves in the hazel tree. 395 :—The blue flies lighting in the hazel tree. 444 :—How abundantly grow the hazel on the foot of the Han hills !

Li ki, I, 119 :—Hazel-nuts used for presents of introduction by women. I, 461 :—Fruits eaten by the ancient Chinese. [See 484, note.] I, 432 :—They presented their offerings in skin caps and white robes. They wore sashes of dolichos cloth and carried staffs of hazel.

Chou li, I, 108 :—Offerings. [V. *supra*, 470.]

The *chen* is frequently mentioned in the *Shan hai king*. Kuo P'o explains :—The fruit resembles the chestnut, but is smaller ; it has a pleasant taste.

Li KI :—The *chen* is a sort of *li* (chestnut). There are two kinds. One of these trees in its bark and leaves resembles the chestnut. It bears a small fruit resembling that of the 栎 *chu* [see the *Rh ya*, 239, an oak] ; it tastes like the chestnut. This is called the *chen li* (hazel-chestnut). The other kind (a shrub) has branches and leaves like the 木蓼 *mu liao* [an oak, v. *infra*, 534] ; it grows about 10 feet high. The fruit resembles in taste the walnut (*hu t'ao*). This kind, which is the true *chen* or hazel-nut, abounds in the mountains of Liaotung (Southern Manchuria) and 上黨 Shang tang (South-eastern Shansi). The fruit resembles that of the 橡 *xiang* (an oak, v. *infra*, 534). The branches are fit for torches.

LU KI's account of the hazel is vague and not characteristic. LI SHI-CHEN [in *P.*, XXX, 50, under *chen*] gives a better description of it. By the drawing under *chen*, *Ch.*, XXXI, 4, evidently the hazel is intended.

The mountains of Northern China abound in hazels. The nuts are called *chen ts'.* There are two species. The nuts of both are edible and sold in the markets. The fruit of *Corylus heterophylla*, Fisch, with its spreading involucre, resembles that of our common *C. avellana*. But in the other species, the *C. mandshurica*, Maxim. (which by some is considered as a variety of the American *C. rostrata*, Ait.), the campanulate involucre is longer than the nut; it covers not only the whole nut but is contracted beyond the apex of the nut into a long rostrum. The whole involucre is covered with stinging bristles.

Both these species occur also in Japan.*

Amoen. exot., 816, 榛 *sin.*, vulgo *fasi basibami, fa.* *Corylus peregrina sativa*, nucce oblonga, calyce brevi non barbato. SIEBOLD, *Syn. plant. aron. jap.*, 158, *Corylus americana*, *Hasi-bama*, 榛. Edunt nucce. SIEBOLD, *Icon. inedit.*, VII, same Chinese name, *Corylus heterophylla*. [See also the *Phon zo*, LXVI, 13, 14.

E., 225, family 榛. Figure more like an oak or chestnut tree. *Jap.*, 690, *Corylus heterophylla*, Fisch.

S., XI, 32. *C.*, 38, *C. heterophylla* (the hazels with flat top).

C. rostrata, Ait., (with pointed top).

497.—椒 *Tsiao*. This character is met with three times in the *Shi*. LEGGE translates it by pepper plant.

Shi king, 179 :—The clusters of the pepper plant (*tsiao*) large and luxuriant, would fill both your hands . . . O the pepper plant, how its shoots (條 rather branches) extend! 207 :—Give me a stalk of the pepper plant. 603 :—Pepper-like smell. MAO explains *tsiao* by 芬香 (fragrance). Another ancient commentator says that the *tsiao* was used in flavoring wine.

See the *Rh ya*, 259, *ta tsiao*. The *tsiao* is repeatedly mentioned in the *Shan hai king*. KUO P'o explains:—A small tree, injurious to wood-worms. The *Shan hai king* mentions also the 秦椒 *Ts'in tsiao* and as an herbaceous plant. *Li sao* 6, 50:—申椒 *shen tsiao*. Poivrier du pays de Chen (Southern Honan). 19:—Monticules plantées de poivriers. 56, 58:—Poivrier.

LU KI:—The *tsiao* tree resembles the 茱萸 *chu yü* [see the next]. It is provided with spines. Its leaves are hard, shining. The people of Shu (Szech'uan) call it 茶 *ts'a*, the people of Wu (Chekiang, Kiangsi) term it 茗 *ming*²⁸. Of the leaves they prepare, by boiling them, a fragrant substance. There are several kinds of *tsiao*. One of them, which grows in the mountains of 成臯 *Ch'eng kao* (Department of K'ai-feng fu, in Honan) has leaves resembling those of the bamboo. This tree is like the 蜀椒 *shu tsiao*. It (the fruit or the leaves) is somewhat poisonous and not used in medicine. The *tsiao* enters into the preparation of beverages and meats; fowl and sucking-pig are seasoned with it. On the islands of the Eastern Sea there is a kind of *tsiao* tree the fruit of which is not round but elongate, very fragrant, with a taste like orange-peel. The flesh of deer, when they eat the leaves of this tree, becomes fragrant.

Tsiao is nowadays a general term for fruits with an aromatic, hot and pungent taste. 辣椒 *la tsiao* is cayenne pepper or chillies, 胡椒 *hu tsiao* is the common pepper, *Piper nigrum*, and 花椒 *hua tsiao* the fruit of *Zanthoxylon*, Chinese pepper. As chillies and common pepper were unknown to the Chinese in the classical period, the term *tsiao* in the *Shi king* can only be referred to *Zanthoxylon*, of which more than a dozen species are known in China. The

²⁸ This seems to be a mistake. *T'a* and *ming* are ancient terms for the tea-leaf. [See the *Rh ya*, 307.]

tree which in Northern China furnishes the Chinese pepper is the *Zanthoxylon Bungei*, Planch., a tree of middle size, very spiny, bearing in autumn dense clusters of small red berry-like capsules of an aromatic, pungent taste; the leaves are likewise fragrant. This tree grows wild in the mountains and is also much cultivated. It is called 花椒 *hua tsiao* in the popular language, but its original name is 秦椒 *Ts'in tsiao*. This name is found in the *Pen ts'ao king* and is derived from the mountain range of Ts'in-ling which divides the valleys of the rivers Han and Wei in Southern Shensi. This is most probably the pepper of the Classics, although there are, it seems, several species of *Zanthoxylon* in different parts of China, which yield this spice. Several kinds of pepper trees are described in *P.*, XXXII, 1-8, and figured in *Ch.*, XXXIII, 40, 41. [See also HENRY, *l.c.*, 42-45].

Amœn. exot., 892, 椒 *seo*, *sansjo*. *Piper japonicum*. Detailed description and figure. This is *Zanthoxylon piperitum*, DC., a shrub. SIEBOLD, *Icon. jap. ined.*, *Z. piperitum*, 秦椒. *Phon zo*, LXX, 2-5, various species of *Zanthoxylon* and their Chinese names.

E., 250, family 椒, with five figures. The first a *Zanthoxylon*.

S., VIII, 2. *Sm.*, 234. *C.*, 492. The distinctions of *H.*, 42-45, are untenable.

Jap., 2391, *Zanthoxylum ailanthoides*, S. & Z., 食茱萸.

" 2392, " *plantaginifolium*, S. & Z., 竹葉椒.

" 2393, " *piperitum*, DC., 秦椒.

" 2394, " *schinnifolium*, S. & Z., 榧椒.

498.—There is a passage in the *Li ki* [I, 462, *Nei tsz'*, "Diet of the Ancient Chinese"] which LÉGÈRE renders:—With the three victim animals they used pepper. The character translated by pepper is 藜 *i*. CHENG HÜAN and the *Shuo wen* explain it by 煎茱萸 (fried *chu yā*).

The *Shuo wen* says the *chu yā* is a kind of *tsiao* (*Zanthoxylon*). [See also the *Rh ya*, 329.] There are three different plants to which the name *chu yā* is applied.

The 食茱萸 *shí chū yū* (edible *chū yū*) is described in *P.* [XXXII, 19] as a lofty thorny tree resembling the 檮 *ch'ü* [*Ailanthus*, v. infra, 518]. Branches with white spots, yellow flowers, aromatic, pungent fruits, used in Kiangsu to season meat. The *Kuang yü* calls it 越椒 *yüē tsiao* [*Yüē* = north-east of Chekiang]. According to TAO HUNG-KING [5th century], this is the *i* mentioned in the *Li ki*, and the 椒 櫟 *tsiao sha* of the *Rh ya* [329].

The *sha* is mentioned in the *Li sao* [57]:—La plante *cha* (檮) qui ne venille que le sachet lui soit ouvert. D'HERVEY says:—La plante *cha* est la même que celle qu'on nomme aujourd'hui *chou yü*. Ce serait alors une sorte de *Sanguinaria* d'une assez grande espèce. But the *sha* is *Boymia* or *Zanthoxylon*.

According to HOFFM. & SCHULTES [632] 食茱萸 or 越椒 is *Zanthoxylon ailanthoides*, S. & Z. In the *Kwa yü* [116] both the above Chinese names are applied to the same species, described there as a tall tree with yellowish white flowers [compare the above description in *P.*]. See also the drawing under the same Chinese names in the *Phou zo* [LXX, 12, 13] which seems rather to refer to a *Rhus*.

The 吳茱萸 *Wu chū yū* or *chū yū* of Wu (Chekiang, Kiangsi) is noticed in *P.* [XXXII, 13] as a drug, the acrid fruit of a tree, resembling the *tsiao* fruit (*Zanthoxylon*). Rude drawing under the above name in *Ch.* [XXXIII, 37]. The drug *Wu chū yū*, obtained from an apothecary's shop at Peking, proved to consist of the fruits of *Boymia* (*Erodia*) *rutecarpa*, described and depicted in SIEBOLD & ZUCC., *Flora japon.*, I, 50, tab. 21, and SIEBOLD, *Icon. ined.*, II, under 吳茱萸. [Compare also HENRY, *l.c.*, 96, 212.] Same Chinese name of this plant in Hupei. SIEBOLD says that this tree has been introduced from China into Japan, where its fruit is much esteemed as a medicine. *Phou zo*, LXX, under the above Chinese names, 9, 10, *Erodia glauca*, and, 11, 12, *E. rutecarpa*.

The 山茱萸 *shan chu yü*, mountain *chu yü*, is spoken of in *P.* [XXXVI, 29]. The drawing in *Ch.* [XXXIII, 38] is bad. In Japan the above Chinese name is applied to the fruit of *Cornus officinalis*; SIEBOLD & ZUCC. *Flora, japon.*, I, 100, tab. 50; SIEBOLD, *Icon. ined.*, IV; *Phon* 20, I.LXXXVII, 15, 16. *Cornus officinalis* has not hitherto been collected in China proper, but SIEBOLD states that it is a Chinese plant. Fruit used in medicine. The drug *shan chu yü*, obtained from a Peking apothecary's shop, proved to be the berries of a *Cornus*.

E., 249, family 樺, with two figures of 山茱萸; one may be intended for *Cornus officinalis*, the other looking more like a *Rosa*. There is also a figure of 吳茱萸, probably of *Evodia rutacarpa*, copy of *S.*, IX, 22, (with two figures, the other of *Cornus*).

H., 96. *C.*, 1455.

Sm., 234, *Zanthoxylum piperitum*.

A., XV, 155, *Sambucus Lourciranica*, dubia.

IX.—Trees.

499.—桑 *Sang*. The mulberry tree. The fruit is 葚 *shen*.

Li ki, I, 264 [*Yü ling*]:—Last month of spring. The queen, after vigil and fasting, goes in person to the eastern fields, to work on the mulberry trees. She stimulates the wives and younger women of the palace to their business with the worms. Corresponding sentence in the *Hia Calendar*, third month:—攝桑. DOUGLAS translates:—Gathered are the mulberry leaves.

Li ki, I, 271 [*Yü ling*]:—First month of summer. When the work with the silk-worms is over, the queen presents her cocoons; and the tithe-tax of cocoons generally is collected,

according to the number of mulberry trees. I, 472 :—A bow of mulberry wood. [See the quotation in 436.] II, 141 :—A ladle of mulberry wood. [See the quotation in 408.]

Chou li, II, 194 :—Fire from mulberry wood. [See the quotation in 528, note.]

Shu king, 99 [*Tribute of Yü*] :—Province of 兗州 *Yeu chou* (Western Shantung). Yü made the mulberry grounds (桑土) fit for silk-worms.

MENCIOUS, 336, 337 :—WEN WANG (the founder of the Chou dynasty, 12th century B.C.) planted around the homestead, the space beneath the walls, with mulberry trees, with which the women nourished silk-worms, and thus the old men were able to have silk to wear.

Shi king, 82 :—The duke of Wan [7th century B.C.] surveyed Ts'u and T'ang, with the high hills. He descended and examined the mulberry trees [to see whether the ground was well adapted for their growth]. 126 :—Do not break my mulberry trees. 184 :—The wild geese rest on the bushy mulberry trees. 191 :—On the hillsides are mulberry trees. 199 :—The yellow birds flit about and rest upon the mulberry trees. 222 :—The turtle-dove is in the mulberry tree. 272, 301, 519 :—Mulberry tree. 337 :—The mulberry tree and the *tsz* : [c. *infra*, 508] must be regarded with reverence. 414 :—In the low, wet grounds the mulberry trees are beautiful and luxuriant, the leaves are glossy, dark. 417 :—They gather firewood of branches of the mulberry tree. 164 :—They gather the mulberry leaves. 228 ["Life in Pin"] :—With the spring days the warmth begins, and the oriole utters its song. The young women take their deep baskets, and go along the small paths, looking for the tender leaves of the mulberry tree. *Ibidem* :—In the silk-worm month they strip the mulberry branches of their leaves, and take their axes and hatchets, to lop off those that are distant and high, only stripping the young trees of their leaves.

What LEGGE translates by young trees is in the Chinese text 女桑 *nü sang*, female (women's) mulberry. The commentary says a small mulberry. [See the *Rh ya*, 303.]

99:—Before the mulberry tree has shed its leaves, how rich and glossy are they! Ah! thou dove, eat not its fruit. When the mulberry tree sheds its leaves, they fall yellow on the ground. 蓂 *shen* in the text. MAO explains it by 桑實 (mulberry fruit). [See the *Rh ya*, 302]. The character is also written 檳 and 鶯, as in the *Shi king* [620].

236:—Creeping about were the caterpillars, all over the mulberry grounds. 234:—I gathered the roots of the mulberry tree, 桑土. The commentary explains that the root of the tree is meant. The white rind of the root of the mulberry tree is still used as a medicine.

The mulberry tree is cultivated in all the provinces of China. The principal object of its culture is the leaf on which the silk-worm feeds. Silk is raised wherever the tree grows. The cultivation of the mulberry tree and the breeding of silk-worms for the manufacture of silk can be traced back to the remotest time of Chinese civilisation. According to an ancient tradition related in HUI NAN WANG's treatise on the rearing of silk-worms [first century B.C.], 西陵 SILING, Empress of HUANG TI [B.C. 2697] first taught the people the art of rearing the silk-worm. She was consequently deified and worshipped.

The mulberry trees cultivated in China for the breeding of silk-worms are all varieties of *Morus alba*, L., as also the trees grown in Western Asia and Southern Europe for the same purposes. *M. nigra*, a native of Western Asia, and much cultivated there for its excellent dark red fruit, is not fit for rearing silk-worms. The name *M. alba* was given to the silk-worm mulberry by C. BAUHIN [*Pinax theatri bot.*, 459] on account of its white fruit. But in China (at Peking at least) the fruit of *M. alba* is generally of a

red colour. I have seldom seen white berries there. The Chinese eat the fruit, but it is insipid.

BUREAU in DE CANDOLLE'S *Prodromus* [XVII, 242] suggests that *M. alba* var. *mongolica*, first discovered by Father DAVID in the mountains of Southern Mongolia, may be the original wild type of the white mulberry. This variety, very common in the mountains of Northern China, is characterised by its leaves being very irregular in shape; they are always lobed, from three to five lobes, the margin of which is provided with long cuspidate teeth; the berries are dark red, nearly black. According to the late Dr. HANCE [*Journ. Botan.*, 1875, 135] the mulberry cultivated in the south has invariably undivided leaves; but the cultivated trees in the neighbourhood of Peking have habitually lobed leaves. The Peking cultivated mulberry trees belong to the variety *latifolia*, which name BUREAU applies to the *Morus alba* most generally cultivated in South and Middle China, and which has also been named *M. multicaulis*. Other varieties of *M. alba* recorded in China are, according to BUREAU, *l.e.*, v. *nigriformis*, Macao (Gallery), v. *indica*, Canton (Hedde), Formosa (Okham), v. *atropurpurea* (*M. rubra*, Lour.).

P., XXXVI; 桑 *sang*. The mulberry tree is well figured in *Ch.* [XXXIII, 34]. *Kiu kwang*, LVI, 16, rude drawing.

In Japan, where sericulture is also highly developed, the same broad-leaved variety of *M. alba* is extensively cultivated for the same purposes. [See MIQUEL, *Prod. Flora japon.*, 130; FRANCHET & SAVATIER *Enum. Plant. Japon.*, [I, 432]. The rearing of silk-worms in Japan, according to the Japanese annals, dates from the 3rd or 4th century. [See N. RONDOT'S excellent work *Les Soies*, 1885, I, 272. SIEBOLD [*Syn. plant. æcon. jap.*, 161] states that the mulberry tree was introduced into Japan from China.

Amor. *exot.*, 783:—桑 *soo*, vulgo *kuea*. *Morus fructu albo*. Eadem fructu nigro. The *Phon zo* [LXXXVI]

depicts, under their Chinese names, several varieties of *M. alba* cultivated in Japan. 14, 15:—桑, small entire leaves, red berries. 15, 16:—白桑 or 魯桑, large entire leaves. 16, 17:—雞桑 leaves lobed. 18, 19:—女桑 leaves lobed, dissected. The same names appear in the early Chinese treatises on sericulture. STANISLAS JULIEN, *Culture des mûriers et éducation des vers à soie en Chine*, 1837, p. 5. RONDOT, *loc.*, I. 216.

E., 245, family 桑, with good figure. *Infra*, 500, is a synonym. *S.*, VIII, 36. *C.*, 1066. *Sm.*, 152. *H.*, 386.

Jap., 1458, *Morus alba*, var. *stylosa*, Bur., 桑.

" " " *latifolia*, Bur., 白桑.

500.—壓 *Yen*. An ancient name for the wild mulberry tree. *Shi king*, 450:—He thinned and hewed the mountain mulberry trees. The Chinese text has *yen* and 柘 *che*, which latter is not a mulberry tree [see the next].

Rh ya, 311:—*Yen* explained by mountain mulberry tree.

Shu king, 102 [Tribute of Yü]:—Province of 青州 *Tsing chon* (Shantung). The wild tribes of Lai-i brought in their baskets the silk from the mountain mulberry (*yen*).

Chou li, II, 581:—Wood of the wild mulberry used for bows. [See the quotation in 501, note.] The *yen* is also mentioned in the *Shan hai king*.

Phou zo, LXXXVI, 14, 15:—山桑 (mountain mulberry). The drawing represents a mulberry with small leaves and red berries. GEERTS, *Japanese Woods*, 桑, *Morus indica*.

501.—柘 *Che*, a tree mentioned in the *Shi king* together with the preceding. It is not a mulberry tree, as LEGGEE thinks, although the *Shuo wen* says that it is a kind of mulberry.

Li ki, I, 264 [Yü ling]:—Last month of spring. Orders are given to the foresters not to allow the cutting down of the mulberry trees (*sang*) and the silk-worm oaks (*che*). The

che is also not an oak). II, 400 :—The game of pitch-pot. [See the quotation in 485.] Arrows made of mulberry wood. The Chinese text has *che*.

Chou li, II, 194 :—Fire from the *che* wood. [See the quotation in 528, note.] II, 581 :—The *che* furnishes the best wood for making bows.²⁹

P., XXXVI, 9, *che*. It is said there that this tree is common in the mountains ; its veined wood is fit for making utensils, its trunk is straight, it grows bushy, the leaves are copious, thick, roundish, lobed ; they are good for feeding silk-worms, and the silk thus obtained is used for making lute-strings which give a clearer sound than the ordinary ones. Its globular fruit resembles the mulberry. The seeds look like those of *Zanthoxylon*. According to the *Ku kin chu* the fruit of the *che* tree is called 佳 *chui*. Birds are very fond of it. The wood yields a yellowish red dye, called the *che* yellow, which is used for dyeing the imperial garments.

²⁹ *Chou li*, II, 581 :—Ouvriers des arcs. Il y a sept espèces de bois qu'on prend pour faire le corps de l'arc :—

- 1.—L'arbre *tche* (柘). Commentator D. :—Il est au premier rang. Il a le bois dur comme la pierre (石).
- 2.—L'arbre *y* (楡). Commentator D. :—Il a peu de branches et de feuilles. Son bois est très courbe. On l'appelle ordinairement *nieou kin* (牛筋) nerf de bœuf [*v. infra*, 544]. *Rh ya*, 230.
- 3.—*Yen sang* (屨桑), le mûrier sauvage ou des montagnes. Commentator A. :—Le *koue ya* dit qu'on l'emploie pour faire des arcs et des carquois [*v.* 500].
- 4.—L'oranger à petites oranges [橘, *v. supra*, 486]. Commentator D. :—Il a la peau plissée et beaucoup de solidité.
- 5.—Le coignassier [木瓜, *v. supra*, 478]. Commentator D. :—Il a un bois serré, ferme et fort.
- 6.—Le bois d'épine (荆) *king*. Commentator D. :—Épineux (楚). [*V. infra*, 521, *Vitex*.]
- 7.—Le bambou [竹, *v. infra*, 563]. Commentator D. :—Le bambou est solide, mais il a des nœuds.

After this *P.* notices the 奴柘 *nu che*, a tree which is said by an author of the 8th century to resemble the *che*, but to have axillar thorns. Its leaves do not fall off in winter. It grows in the wild mountainous country of Kiangnan (present Kiangsi). LI SHI-CHEN says, this tree resembles the *che*, but is provided with thorns, and smaller. Its leaves, which resemble those of the 柞 *tsa* (an oak, *v. infra*, 534), but are smaller, are used for feeding silk-worms.

See in *Ch.*, XXXV, 46 and 27, figures representing these two trees; also *Kin huing*, LVI, 5; rude drawing.

The *che* tree of the Chinese is now well-known to our botanists. It is the *Cudrania triloba* of the order *Artocaypece*, to which belongs also the mulberry tree. It was first described by Dr. HANCE in 1868. [See HOOKER, *Icon. plant.*, VIII, 1887, tab. 1792.] It has been gathered in various parts of China by DEBEAUX, FORBES, DAVID, HENRY. F. B. FORBES writes [in the *Journ. Bot.*, 1883, 145] that the tree varies much in habit, being found often with thorns and as often without them. The typical form of the leaves is distinctly 3-lobed. [See also HENRY, *l.c.*, 19.]

I cannot say what the drawing in the *Phon zo* [LXXXVII, 1] under 奴柘 is intended for. FRANCHET & SAVATIER [*l.c.*, I, 434] mention the *Cudrania japonensis*, Trée., in Japan. It is represented in the *Phon zo* [*l.c.*, 5] but under the same Chinese name as the *Byrsonnetia* [*v. infra*, 503].

E., 248, family 柘, with recognizable figure of *Cudrania*.

Kan [502] is a synonym.

Jap., 715, *Cudrania triloba*, Hce., 奴柘.

502.—榦 *Kan*, also written 幹. See *W.D.*, 374, the trunk of a tree. But in the Classics this character sometimes seems to designate a distinct tree.

In the *Shu king* [112. Tribute of Yü] the *kan* is mentioned together with other trees as produced in the province of 荊州 King chou (Hukuang). LEGGE translates, wood for

bows. K'UNG AN-K'UO defines *kau* by 柘 [see the preceding]. TS'AI understands, in general, wood fit for making bows.

Li ki, I, 265 [*Yü ling*]:—Last month of spring. Orders are given to the chiefs of works to inspect the materials in the five store-houses . . . those of arrows and wood for bows, 箭幹 *tsien kan*. Regarding the first character, which properly means an arrow, but also a kind of small bamboo, see 564. According to HENRY [l.c., 238], *tsien kan* in Hupei is a name for *Arundo malagascarensis*, Kth.

Chou li, II, 461:—On estime le bois dur du pays de King (荆幹). Commentator B. (CHENG HUAN):—C'est le bois 柘 qui est employé pour le manche ou milieu des arcs, des arbalètes.

503.—穀 *Ku* [not to be confounded with 穀 *ku*, corn, *r. supra*, 335] is, as LEGGE correctly states, a name for the paper mulberry, *Broussonetia papyrifera*, Vent.

Shi king, 297, 301:—Yellow bird, do not settle on the *Broussonetia*. MAO explains *ku* by bad tree, the *Shuo wen* by 楮 *ch'u* and writes the first name 穀 *ku*. Both these names, *ku* and *ch'u*, occur in the *Shan hui king*. KUO P'o explains that it is also called 楮 *kou*. Paper is made of its bark.

LU KI:—The people of 幽州 *Yu chon* (Northern Chili) call the *ku* tree 穀桑 *ku sang* (*ku* mulberry); another name for it is *ch'u sang*. In 荆 King (Hukuang), 揚 Yang (Anhui, Chekiang) and in 交廣 *Kiao kuang* (Kuangtung) it is *ku*, in 中州 *Chung chon* (Honan) *ch'u*. Now in Kiangnan the people make cloth and paper from its bark. The paper is several *chang* long, pure white, shining, of excellent quality. The young leaves of the tree may be eaten.

P., XXXVI, 10. 楮 *ch'u*. This character was originally written 杼 and 渚. Good description given of the tree. The *Yu yang tsai tau* [9th century] distinguishes two varieties, that with divided (lobed) leaves, called *ch'u* and that with

undivided leaves 楮 *kou*. A good drawing of the tree in *Ch.*, XXXIII, 57.

Amen. erot., 471, 895 :—楮 cum iconc, *Kuads.* Papyrus fructu mori eelse, foliis urticae mortuae, cortice papyrifero. Detailed description.

Phou zo, LXXXVII, 2-5, five drawings under the Chinese names 楮, 構 and 穀桑, referred by FRANCHET to *Broussonetia papyrifera*, and [5] to *Cultrina jarauensis*.

SIEBOLD, *Syn. plant. ocean. jap.*, 164, *Broussonetia papyrifera*, 楮 *kaminoki*, and, 165, *Br. kazinoki* 構. Utriusque speciei cortex ad chartam conficiendam ubique adhibetur, etiam pro funibus ac liber pro linteo inservit.

Broussonetia papyrifera, Vent., is a common tree in China and Japan.

E., 262, family 楮, with good figure.

S., VIII, 38. *A.*, XV, 35. *H.*, 179.

Jap., 382, *Broussonetia Kasinoki*, Sieb., 楮.

" 383, " *papyrifera*, Vent., 楮.

504.—松 *Sung* is a general term for coniferous trees, and refers especially to the genera *Pinus*, *Abies*, *Larix*. LEGGE, in translating the Classics, renders the character *sung* correctly by fir tree, or pine, for in the Classics it denotes probably always the *Pinus sinensis*, Lamb., (*P. Massoniana*, Lamb.), the Chinese pine, the most common species in China, found all over the empire. Compare HENRY, *l.c.*, 400, *sung*, *Pinus Massoniana*, the common pine about Ichang. See also an interesting notice of the Chinese pine by TH. SAMPSON, in *Notes and Queries on China and Japan*, 1868, 52. In the Classics and other ancient Chinese writings the *sung* is frequently mentioned together with the *po* (*Thuja*).

Shi king, 258 :—Like the luxuriance of the fir (*sung*) and the cypress (栢 *po*). 450 :—Firs and cypresses (*po*) in the hills. 629 :—The firs of Tsu lai and the cypresses (*po*) of Sin fu were cut down to build a temple. [Tsu lai and Sin fu

mountains in Tai an, Shantung.] 646 :—We ascended the hill of King (near the capital of the Shang dynasty) where the pines (*sung*) and the cypresses (*po*) grow symmetrically. We cut them down to build a temple. 102 :—The waters of the 淇 Ki (a tributary of the Wei, in North-eastern Honan) flow smoothly, there are the oars of cedar (*hui*, *c. infra*, 506) and the boats of pine (*sung*). 193 :—On the mountain is the lofty pine. 303 :—Luxuriant head of a pine tree. 390 :—The mistletoe and the dodder growing over the pine tree and the cypress (*po*).

Shu king, 102 :—[Tribute of Yü] :—Pines ; a product of the province of Ts'ing chou (Shantung).

CONF. *Anal.*, 26 :—The pine tree, planted by the founder of the Hia dynasty, about the altars of the spirits of the land. [See quotation in 494.] 89 :—[See *the next*.]

Regarding pine trees planted about the grave of the Son of Heaven, *c. infra*, 550.

The *Shan hai king* notices the pine trees on 華山 Hua shan (mountain in the south-east of Shensi) and on other mountains.

Li ki, II, 199 :—The outer shell of the coffin of a ruler was of pine (*sung*) ; of a great officer, of cypress (*po*). I, 395 :—The pine and the cypress are the best of all productions of the vegetable world, they endure through all the four seasons without altering a branch or changing a leaf.

Chou li, II, 274 :—La Province de Ki tcheou (Southern Shensi) produit du bois de pin (*sung*) et de cyprès (*po*).

P., XXXIV, 3, *sung*. *Ch.*, XXXIII, 4.

Amæn. exot., 883 :—松 *sjo*, vulgo *maat*. Pinus in genere : ejus variae sunt species. SIEBOLD, *Syn. plant. acon. jap.*, 53, *Pinus sylvestris*, Thbg. (= *P. Massoniana* in *Flora japon.*, II, 24, tab. 113, 114) *oomats*, 松 黒松 (*Pinus nigra*).

E., 197, family 松, with a good figure.

S., IX, 2; XI, 34. *Sm.*, 97.

Jap., 1639, *Pinus densiflora*, S. & Z., 赤松.

" 1640, " *koraicensis*, S. & Z., 海松.

" 1641, " *parviflora*, S. & Z., 五鬚松.

" 1642, " *Thunbergii*, Parlat., 黑松.

505.—柏 *Po*, written also 栢, but not in the Classics. In the Classics and other ancient writings this name, denoting, according to LEGGE, the cypress, is frequently coupled with *sung* the pine.

Shi king :—[See the quotations under *sung*, 501]. 38 :—It floats about, that boat of cypress wood (*po*) on the current. 73 :—It floats about, that boat of cypress wood (*po*) there in the middle of the 河 Ho (Yellow River).

Shu king, 112 [Tribute of Yü] :—The Province of King chou (Hukuang) produces cypresses (*po*).

CONF. *Analecta*, 26 :—The *po* planted by the founder of the Yin dynasty about the altars of the spirits of the land. [See the quotation in 494.]

89 :—The Master said :—When the year becomes cold, then we know how the pine (*sung*) and the cypress (*po*) are the last to lose their leaves.

Li ki, I, 159 :—The shell of the coffin is of cypress wood [see quotation in 508]. II, 199 :—The outer shell of the coffin of a ruler was of pine; of a great officer, of cypress (*po*). I, 395 :—The *sung* and *po* the best woods. [See the quotation in 504.]

Chou li, II, 274 :—The *po* a product of the Province of Ki chou (Southern Shansi). Regarding *po* trees planted about the graves of the feudal princes, *v. infra*, 550.

Rh yu, 225, 柏, the same as 栢 *kā*.

Nowadays in the north of China the name *po* is applied to *Thuja* (*Biota*) *orientalis*, L. The genus *Thuja* (*Arbor vitae*) belongs to the tribe of *Cupressineae*; it resembles the cypress

in its leaves. The Eastern-Asiatic *arbor vitae* is a tall tree, very common in China, especially in the northern provinces, and I think the *po* of the Classics is to be referred to this tree, although some Chinese species of *Cupressus* go under the same name.

HENRY, *l.c.*, 353:—*Po* at Ichang is *Cupressus funebris*, and 354; 崖柏 *ai po* is *Biota orientalis*.

P., XXXIV, 1, *po*. Ch., XXXIII, 1, *po*, rude drawing, seems to represent *Thuja orientalis*.

Lucæn. *cat.*, 884:—柏 *finoki altern* (the Chinese character is, evidently by a typographical error, referred to the next plant, *faku*, which is a *Rottlera*). *Cupressus vulgaris nostras*, foliorum odore balsamico; fructu ut plurimum quina semina, tritici grano similia, continente. This is *Thuja orientalis* according to THUNBERG [*Flora japon.*, 266]. SIEBOLD, *Syn. plant. æcou. jap.*, 63, *Thuja orientalis*, i.q. *hinoki*, 扁柏. *Lignum coniferarum longe præstantissimum*.

Phon 20, LXXVII, 21, 柏 or 側柏, *Thuja orientalis*.

The character 楠 *kā*, which in the *Rh ya* [225] is given as a synonym of *po*, is found in the *Li ki* [II, 141]:—The mortar for the fragrant herbs, in making sacrificial spirits, was made of cypress wood (*kā*). [See the quotation in 408.]

E., 203, family 柏, with bad figure. *Kū* is mentioned as a synonym.

S., IX, 5. Sm., 38.

A., XV, 175, *Cupressus sempervirens*, L. [v. Sm., 82].

Pr., 5, 扁柏, *Biota orientalis*, End. C., 950.

Jap., 2201, *Thuja orientalis*, 側柏.

" 2197, " *dolabrata*, L., 羅漢柏.

506.—檜 *Kui*. This tree is once mentioned in the *Shi king* [102] together with the pine. LEGGE calls it cedar, but says that in the Japanese plates it is *Juniperus*. [See the quotation in 504, oars of cedar.]

In the *Rh ya* [319] *kui* is explained:—Leaves of the *Thuja*, trunk of the pine.

LI SHI-CHEN, in *P.* [XXXIV, 2, at the end of the article *po*] gives a short account of the *kui* tree and calls it *sung po*, *Pine Thuja*. He describes it as a tall, straight tree with a thin bark. Its wood is oily (resinous). It has small flowers, and fruits like little balls, which after hoar-frost split into four valves and then show a number of seeds of the size of a wheat grain. The tree has a pleasant fragrance. This is the *kui* tree of the *Rh ya*. It is now commonly called 圓栂 *yūan po* (*po* with globular fruits). One variety has pointed (acicular) leaves and is called 栂 *kuai*.

The drawing in *Ch.* [XXXIII, 2] under *kui* or *yūan po* is bad, but it seems that *Juniperus* is intended.

Jaen. *erol.*, 884:—檜 *quai*, vulgo *finaki* et *ihuki*. Cupressus, succo imbuta pingui viscido aromatico, odorem juniperinum spirante, fructu verrucoso parvulo, pisi magnitudinis. According to SIEBOLD & ZUCCARINI [*Flora japon.*, II, 58, 35] this is *Juniperus chinensis*, L.

In the *Phon zo* [LXXVIII, 2] *J. chinensis* is figured under the Chinese names 檜, 刺栂 and 栂子松.

Under the names 刺栂 *ts'z' po* [H., 355] acicular *Thuja*, and 刺松 *ts'z' sung*, acicular pine, *Ch.* [XXXIII, 3] figures a *Juniperus*, probably *J. chinensis*, for *ts'z' sung* at Peking is the popular name of this tree.

The 栂 *kuai* is generally considered by the ancient writers to be the same as the *kui* [see the *Kuang yān Dictionary* and *Rh ya i*]. The *Shuo wen* states that the wood of the *kuai* is used to scorch the tortoise-shell for use in divination.

Shu king, 115 [Tribute of Yü]:—The *kuai* mentioned as growing in the Province of King chou (Hukuang). K'UNG YING-TA says the *kuai* is the same as the *kui*, and LEGGE translates it by cedar.

It seems to me that the *kui* as well as the *kuai* must be referred to *Juniperus chinensis*, L., a tall, very common tree in the Northern Provinces of China. It is remarkable for the dimorphism of its leaves. They resemble generally those of *J. Sabina* or of the common cypress, *i.e.* they are scale-like and closely appressed. But frequently one or more branches on the same tree show spreading acicular leaves, as in *J. communis*. Sometimes the whole tree has only acicular leaves. These are probably the trees to which the name *kuai* was applied. See above LI SHI-CHEN's account of the *kui*, which, however, is not quite correct if he has in view the juniper, the galbani of which are not dehiscent. See regarding the Chinese Juniper tree and its peculiar leaves, DU HALDE, *La Chine*, II, 150, and GROSIER, *La Chine*, II, 326, *le tse song ou yuene pi*, arbre cyprès-génévrier.

E., 258, family 檜, without figure.

Jap., 1204, *Juniperus chinensis*, L., 檜 and 檜柏.

" 1206, " *rigida*, S. & Z., 杜松.

507.—稷木 *Tsi mu*, a tree mentioned in the *Shan hai king*. K'uo P'ao says that it resembles the *sung* or pine, is prickly and has a finely veined wood.

As I have not found this term, some other Chinese names of *Conifera* may find a place here.

Jap., 4, *Abies firma*, S. & Z., 檜.

" 552, *Cephalotaxus drupacea*, S. & Z., 粗榧.

" 1018, *Ginkgo biloba*, L., 公孫樹.

" 1232, *Larix leptolepis*, Gord., 落葉松.

" 1669, *Podocarpus macrophylla*, Don., 羅漢松.

" 1670, " *Nageia*, R. Br., 竹柏.

" 2017, *Sciadopitys verticillata*, S. & Z., 金松.

" 2178, *Taxodium heterophyllum*, Brong., 水松.

508.—梓 *Tsi*, also written 梓, name of a tree frequently mentioned in the Classics,

Shi king, 81 :—Duke Wan [7th century B.C.] planted about his mansion at Ts'u (楚) *tsz'* trees. 337 :—The mulberry and the *tsz'* must be regarded with reverence.

Li ki, I, 158 :—The coffin of the Son of Heaven is fourfold. The hides of a water buffalo and a rhinoceros, overlapping each other, form the first, three inches in thickness. Then there is a coffin of 栂 *i* wood [*r. infra*, 548] and two of the *Rottlera* (*tsz'*). The four are all complete enclosures. The shell of the coffin is of cypress wood.

Chou li, II, 462 :—Travail des bois de prix (梓). Commentator B. (HENG HUAN) :—Le bois de prix, aussi 榎 *kia* sert pour faire les vases de cérémonies et les instruments de musique en bois précieux.

Shu king, 413, 梓材 :—"The timber of the *tsz'* tree," title of one of the books of the *Shu king*, which book, however, has nothing to do with the tree.

MENCIUS said, [291] :—Anybody who wishes to cultivate the *tu'ng* [*r. infra*, 515] or the *tsz'*, which may be grasped with both hands, perhaps with one, knows by what means to nourish them.

In the *Rh ya* [293] the 梓 is the same as 椅 *i*. Kuo P'o says same as 楸 *ts'iu*. But in explaining the *Shan hai king*, where the *tsz'* is repeatedly mentioned, Kuo P'o says it is the *shan ts'iu* or mountain *ts'iu*.

According to the *Shuo wen*, 梓 is the same as 楸 and also the same as 榎 *kia*.

LU KI :—The *tsz'* is a variety of the *ts'iu* with a white coarsely veined wood, and which bears fruit. Another variety which has the fruit of the *tsz'* and the rind of the *t'ung* [*r. infra*, 515, *Paulownia*] is called 椅 *i* [*c.* 509].

The *Ts'i min yao shu* [5th century] states that the variety with a white bark, and with fruits resembling horns, is called 梓 *tsz'* or 角楸 *kio ts'iu*, horned *ts'iu*. Other ancient authors describe these horns (capsules) as more than a foot

long, and slender; after the leaves have fallen off, the fruit still hangs on the tree. Compare with this DAVID, *Troisième Voyage dans l'Empire chinois*, I, 247:—J'observe sur les bords du torrent des *Catalpa* qui conservent encore leurs nombreuses gousses, longues et minces, qui font un effet curieux sur ces arbres éfeuilés [25th January, 1873, Southern Shensi].

The *P'í yü* [11th century] says:—In the same way as the 牡丹 *mou tan* (*Paeonia moutan*) is called 花王 *hua wang*, (the king of flowers) the *tsz'* is termed 木王 *mu wang* (the king of trees) for there is no other wood which is superior to the wood of the *tsz'*.

The *Rh ya i* [12th century] says:—The *tsz'* yields a valuable timber for house-building. A house built of it is never struck by lightning.

P., XXXVa, 20, 梓 *tsz'*. SU SUNG [11th century] says:—The wood of the *tsz'* yields a valuable timber much used for building palaces, temples and houses. It is largely cultivated in gardens. LI SHI-CHEN states:—This tree is very common. There are three varieties of it. That with a white veined wood is the *tsz'*, that with a red wood is 楸 *ts'iu*, that with a beautifully veined wood is 椅 *i*. A smaller variety of the *ts'iu* is called 榎 *kia*. [Compare also the *Rh ya*, 290–292.] These names are frequently confounded by Chinese, and it seems also by Japanese, botanists.

The *Shan hai king* mentions a tree, 楠 *siao*, which, according to KUO P'ò, is the same as the *ts'iu*. [See *W.D.*, 794.]

Ch. [XXXIII, 47, under 梓] gives a good drawing of *Catalpa Bungeana*, C. A. Meyer, with flowers and fruits. This beautiful tree is known at Peking under the name of *ts'iu*. It attains considerable dimensions. Its leaves are very variable in size, heart-shaped or triangular, entire or lobed; they have an unpleasant smell. In May the tree is covered with a profusion of large bell-shaped flowers, white

with purple spots. The capsules are long and slender. A rude picture of the *ts'ia*, only leaves, is found in the *K'ia huang* [LVI, 11]. HENRY, *l.c.*, 78, *ts'ia* in Hupei is the *Catalpa Kämpferi*.

Anon. cat., 811, 842, 角楸 *kakusju*, vulgo *kawara jiaugi*, detailed description and drawing of *Catalpa Kämpferi*, S. & Z. SIEBOLD, *Icon. ined.*, VI, 楸, *Catalpa Kämpferi*.

SIEBOLD, *Icon. ined.*, VI, and *Flora japon.*, I, 147, tab. 79. 梓, *Rottlera japonica*. SPRENGEL, *Croton japonicum*, Thbg. [*Flora japon.*, 270]. Order *Euphorbiaceae*. The leaves of this shrub, which is found also in China, have some resemblance to the leaves of *Catalpa*. The fruit is a capsule of the size of a cherry. In the *Phon zo* [LXXXII, 23, 24] we have 梓, *Catalpa Kämpferi*, and [24-25] 楸, *Rottlera japonica*.

The *tsz'* of the Classics is, I have no doubt, *Catalpa*, and most probably the character 楸 *kia*, referred likewise to this tree, has erroneously been identified with 欝 *kia*.

MENCIUS said:—A plantation-keeper who neglects his *ren* [*Sterculia*, *v. infra*, 516] and *kia* (欝) and cultivates his sour wild dates (jubes, *v. supra*, 484) is a poor plantation-keeper.

T'AO CHUAN, 415, 416 [Duke Siang, B.C. 570]:—Muli-keang (Duke Ch'ing's mother) had caused some fine *kia* trees to be chosen, to make for herself a coffin and a lute. 423 [B.C. 568]:—Ke-sun had planted for himself six *kia* trees in the Pu orchard outside the east gate. K'ing asked him for some trees [to make the coffin] and when he gave a half-assent the other used the *kia* trees without Ke-sun's forbidding him. 833 [Duke Gae, 493-467 B.C.]:—Tsz'-sen, when about to die, said:—Plant *kia* trees by my grave. [The *kia* furnished wood for coffins.]

In all the above quotations, *kia* is 欝 in the modern editions of the Classics, but, as has already been noticed [see *supra*, 292],

some Chinese authors assert that this character was anciently written 榎. We may therefore suppose that in the ancient editions of the Classics the latter character was used in the above-quoted passages, and that the *kit* were *Catalpa* trees.

V. supra, 290, 292.

509.—椅 *I*, also written 椅. Name of a tree mentioned in the *Shi king*.

81 :—Du ke Wan [7th century B.C.] planted around the mansion at Ts'ü (楚) the *i* and other trees. 276 :—From the *t'ung* [*r. infra*, 515, *Paulownia*] and the *i* the fruit hangs down.

The *Rh ya* [293] makes the *i* to be the same as the *tsz'* (*Catalpa*), but the mention of both in the text [81] seems to show that they are different.

LU KI, after having spoken of the *tsz'*, says that the *i* is a tree which has a fruit like that of the *tsz'* and a bark like the *t'ung* [*r. infra*, 515, *Paulownia*].

510.—榎 *Yü*. *Shi king*, 273 :—On the hills of the north is the *yü*. The *Rh ya* [260] calls this tree 鼠梓 *shu tsz'* (rat's *Catalpa*).

LU KI :—It is a sort of *ts'ü* (*Catalpa*) ; it resembles that tree in the leaves and in the texture of the wood. Now the people call it 苦楸 *k'u ts'ü* (bitter *Catalpa*). The wood is said to be brittle in wet weather and strong in dry weather. In 永昌 *Yung ch'ang* it is known under the name of *shu tsz'*. In the Han time it was termed *yü*.

511.—條 *T'iao*. This character properly means a branch, a twig, the *Shuo wen* says a small branch, and in this sense it is used in the *Shi king* [17]. But *t'iao* in ancient times had also other meanings. In the *Rh ya* [236] it denotes the *Pumelo* ; in the *Shan hai king* an herbaceous plant repeatedly mentioned.

In one passage of the *Shi*, *t'iao* is, according to the Chinese commentators, the name of a tree. MAO says, the same as the 栲 *t'ao* in the *Rh ya* [223], which is said there to be the 山榲 *shan kia* or, as KUO P'ao explains, the 山楸 *shan ts'iu*. I cannot understand why MEDHURST, who is followed by LEGGE, asserts that this is a kind of fir distinguished by its white bark. None of the Chinese commentators assign to it this meaning.

Shi king, 197:—On the Chung nan 終南 mountains (south of the old capital Hiao in Shensi) there are white firs (*t'iao*).

LU KI:—The *t'iao* is the same as the *t'ao* in the *Rh ya* and is now called 山楸 *shan ts'iu* (mountain *Catalpa*). It resembles the *ts'iu* which grows in the plain, but its bark is white, and the leaves are also white (downy). It affords good timber, boards for carts and coffins.

It is impossible to guess what tree the *shan ts'iu* was. The name *ts'iu* seems to be applied to several trees, the leaves of which resemble those of *Catalpa*. In the *Kiu huang* [LIV, 31] is a rude drawing of the 刺楸 *ts'z' ts'iu* or thorny *ts'iu*, represented with palmate leaves and thorns. [See also *Ch.*, XXXIV, 16.] It is described as a large tree provided with large thorns and *Catalpa* leaves. Its rind is greenish white with yellow spots. This is, according to HENRY [*l.c.*, 79], the *Acanthopanax ricinifolia*, S. & Z., and the same as the *ts'z' ts'iu* tree with a five-pronged leaf observed by PARKER in Szechuan [*China Review*, X, 160]. It has the same Chinese name in Japan. [See the *Kwa xi*, 89.] According to this Japanese work it is a tree of large size.

V. supra, 290. Other *Araliaceæ* are mentioned:—

Jap., 13, *Acanthopanax aculeatum*, Seem., 五加.

„ 199, *Aralia cordata*, Thbg., 土當歸.

„ 200, „ *spinosa*, L., 楸木.

„ 941, *Fatsia japonica*, Dec. & Pl., 金剛菜.

Jap., 1067, *Hedera Helix*, L., 常春藤.

" 1074, *Helwingia japonica*, Dietr., 青美葉.

" 1549, *Panax repens*, Max., 土參.

" 1550, " *Ginseng*, C. A. Mey., 人參.

512.—楠 *Nan*. Name of a tree repeatedly mentioned in the *Shan hai king*. K'uo P'ao says :—A large tree commonly called 楠 *nan*.

In the passage of the *Shi king* [197] where *t'iao* [see 511] is mentioned as growing together with the 梅 *mei* in the Chung nan mountains, LI KI in his commentary takes *mei* as in this place not meaning the plum tree. He thinks that the *Shi* has in view the 楠 *nan*, of which he gives the following account :—The *nan* in its bark and leaves resembles the 樟 *yā chang* [camphor tree, *v. infra*, 513]. The leaves are as large as an ox-ear, ending in a point and with a red heart. The flowers are of a yellowish red colour, the fruits are green, not eatable. The leaves are clustered three or four together. The wood is more finely veined than that of the *yā chang*. There are varieties of this tree, one with red fruit, the wood of which is tough. Another kind has white fruit, its wood is easily broken. The people of King chou (Hukuang) report that in the districts of 新城 *Sin ch'eng* and 上庸 *Shang yung* (which correspond to ancient Chung nan) there are plenty of *chang* (camphor trees) and *nan* trees. The *Rh ya* [227] gives the above character *nan* as a synonym for *mei*.

The *nan* tree here spoken of (the character is more commonly written 楠 *nan*) is a large tree which nowadays is found in the Province of Sz'ch'uan, and affords the highly esteemed *nan mu*, a tough, incorruptible wood, much used for buildings and furniture.

It is mentioned by SZ MA SIANG JU [*v. infra*, 514]. LI SHI-CHEN, in *P.* [XXXIV, 37] describes it as a tree of enormous size growing in the Province of Sz'ch'uan, with fruit resem-

bling the 丁香 *ting hiang* (clove). This interesting tree has been determined by Prof. OLIVER of Kew, from specimens received from Sz'ch'nan. It is the *Persea nana* of the Laurel order. [See HOOKER, *Icon. plant.*, IV, 1880, p. 10, tab. 1316. HENRY, *l.c.*, 303.] In Japan, where the Chinese *nan mu* is not found, the name 南木 is applied to another *Lauracea*, the *Machilus Thunbergii*, S. & Z. (*Laurus indica*, Thbg.). [See the *Phon zo*, LXXXI, 7, 8].

According to *Index Fl. Sin.*, Vol. II, p. 376, it is *Machilus Nanmu*, Hemsl. *V. supra*, 227. Of *Laurineæ* are mentioned:—

Jap., 53, *Actinodaphne laucifolia*, Meisn., 六股.

" 599, *Cinnamomum Camphora*, Nees, 樟.

" 600, " *Lourcirea*, Nees, 桂.

" 758, *Daphnidium strychnifolium*, S. & Z., 天台烏藥.

" 1286, *Lindera glauca*, Bl., 山胡椒.

" 1289, " *sericea*, Bl., 釣樟.

513.—樟 *Yā chang*, name of a tree, or more probably of two trees [see farther on] which are repeatedly mentioned in the *Shan hai king*. The second character is there sometimes written 樟 *chang*, which now is the common name for the camphor tree, *Laurus Camphora*, L. Kuo P'o explains *yā chang* by a great tree resembling the *ts'iu* (*Catalpa*) and having evergreen leaves; can only be distinguished after seven years [see farther on the meaning of this statement].

W. D. [23] says that *Yū chang* is the ancient classic name for the Province of Kiangsi, and that the present name for the camphor tree is derived from it. I may observe that the name *Yū chang* in this sense is not met with in the Classics, so far as I know. It appears first in the History of the Earlier Han, in the 2nd century B.C., as the name of a department comprising a great part of present Kiangsi.

But *yā chang* for camphor-tree occurs in the *Tso chuan* [847], referring to the year B.C. 477:—He tore up a large log of a camphor-wood tree, killed a man, and died.

P., XXXIV, 38, 樟 *chang*. CH'EN TS'ANG-K'U, an author of the first half of the 8th century, says that the camphor tree is called *chang* from the district of Yü chang, which abounds in these trees. The *yü chang* is mentioned by SZ' MA SIANG-JU [second century B.C.]. [See quotation in 514]. It appears from the quotations found in K.K.F.P. [LXXII, 12] under *yü chang*, that in ancient times this term probably referred to the camphor tree. The *Shi i ki* [4th century] says that the *yü chang* was used for ship-building. The *Shu i ki* [6th century] relates that the Emperor HAN WU-TI [B.C. 140-86] built a palace of *yü chang* wood. But YEN SHI-KU [7th century], quoted in K.D., states that by *yü chang* properly two trees are to be understood which greatly resemble each other and can only be distinguished when seven years old; the *chang* is the true camphor tree. The *yü* is referred in P. [i.e., 39] to another *Lauracea*, called also 鈎樟 *tiao chang* (hook camphor tree) and 烏樟 *ü chang* (black camphor tree). It is supposed that the 檜 *lun* of the *Rh yü* [248] is this tree.

Laurus camphora is a common tree in Middle and Southern China. It abounds especially in the Province of Kiang-si and in Formosa. It is likewise plentiful in Japan. A good drawing of the tree is found in Ch. [XXXIII, 61].

Auzan. exot., 770, 樟. *Laurus camphorifera*, sive vulgo *kusanoki*. With figure.

SIEBOLD, *Syn. plant. æcon. jap.*, 137. P'hou zo [LXXXI, 8, 9], 樟, *Laurus camphora*, and 10, 11, 鈎樟 *Lindera sericea*, Blume.

E., 259, family 樟, with figure of a tree.

514.—There is in K.D. a quotation from one of the poems of SZ' MA SIANG-JU [† 126 B.C.] in which he mentions several trees of the Laurel order, viz., 檉 *p'ien*, 楠 *nan* [see 512], 櫟 *yü*, 章 *chang* [see 513]. The commentary says:—Large trees of Southern China. The dictionary Yü pien

[6th century] says that the *p'ien* resembles the *yü chung*. [See also *W.D.*, 690, and the *Rh ya*, 248.]

515.—桐 *T'ung*. This tree is frequently mentioned in the Classics. LÉGÈRE calls it erroneously *Elæococca*, *Dryandra*.

Shi king, 81 :—Duke Wau [7th century B.C.] planted the *t'ung* together with other trees about the mansion at 楚 Ts'u. They furnished materials for lutes. A commentator says that the best lutes are those of which the upper part is made of *t'ung* wood, and the bottom of that of the *tsz'* (*Catalpa*, v. *supra*, 508). 276 :—From the *t'ung* and the *i* [509] the fruit hangs down.

Shu king, 104 [Tribute of Yü] :—Province of 徐州 Sū chon (Northern Kiangsu and Anhui). The solitary *Dryandra* (孤桐) from the south of Mount 嶧 Yih. The commentary says that the *t'ung* is considered good for making lutes. The older and loftier the tree, the better for the purpose. A solitary tree on the hill side or top, having outlived all its compeers, would possess a special value.

MENCIVS, 291 :—[See the quotation in 508.]

Hia Calendar, 49 :—Third month. 拂桐芭. An obscure phrase which DOUGLAS translates :—Wave to and fro the *Aleurites cordata*'s cylindrical flowers. BIOT :—Otez les fleurs de l'arbre thoung.

Li ki, I, 262 [*Yü ling*] :—Last month of spring. The *Elæococca* (*t'ung*) begins to flower. II, 40 [" Mourning Rites "] :—Staffs of bamboo and *Elæococca* (*t'ung*).

The *t'ung* tree is frequently mentioned in the *Shun hai king*.

Rh ya, 309, *t'ung* tree, also 榮 *yung*. KUO P'o refers this erroneously to *wu tung* (*Stereulia*). Not this but the tree mentioned in the *Rh ya* [283] is *wu tung*.

LU KI :—There are many sorts of *t'ung*; the 青桐 *ts'ing tung* (green *t'ung*), the 白桐 *pai* or white *t'ung*, the 赤桐 *ch'i* or red *t'ung*, the 梧桐 *wu tung*. The wood of the white

is good for making lutes. Now the people of 鮮阿 Tsang ko (a part of Sz'ch'uan, Kuichou, etc) and Yünnan spin thread from a *t'ung* tree and make a kind of cloth which resembles woollen cloth. [This refers to *Sterculia*, v. *infra*, 516.]

P. XXXVa, 23, 桐 *t'ung* also 白桐 white *t'ung* or 泡桐 *pao t'ung*. LI SHI-CHEN, who correctly refers the *Rhpa* [309] to this, gives the following description of the *t'ung* tree:—It has very large leaves, variable in shape. Its rind is of a dirty white colour. Its wood is light, never injured by insects. It is used in making various utensils, and is also excellent for pillars in building houses. It opens its flowers in the second month: they resemble the flowers of the 牽牛 *k'ien niu* (*Pharbitis*), are white or of a purple colour. The fruit is more than an inch long, as large as a jujube. Within the capsule are the seeds. These are light, flattened, winged like the seeds of the elm tree. When ripe the fruit bursts, and then the seeds are carried off by the wind.

The *t'ung* tree is figured in *Ch.* [XXXIII, 46]. Cordate leaves, ovoid acuminate fruit. According to HENRY [*l.c.*, 490] this is the *Paulownia imperialis*, S. & Z., called *pao t'ung* in Hapei. It is a common tree in the middle part of China. [See DAVID, *Troisième Voyage dans l'Empire chinois*, I, 22, 65, 94, 275; II, 69]. The above Chinese description of the *t'ung* agrees with *Paulownia*. I have no doubt this was the *t'ung* mentioned in the Classics, the wood of which was used for making lutes.

Amoen. erot., 860, 861, 桐 *too*, vulgo *kiri*. *Althrea arbor dipyrena, flore digitalis æmulo. Arbor satis vasta, cortice pingui, glabro, glauco . . . ligno levissimo, firmo tamen et a seriniariis pro fabricandis capsulis expotito: medulla albißima, etc.* Detailed description and a good drawing. This is the *Bignonia tomentosa* of THUNBERG or *Paulownia imperialis*, S. & Z. [*Flora japon.*, I, 27, tab. 10.]

SIEBOLD, *Syn. plant. æcon. jap.*, 184 :—*Bignonia tomentosa*. *Kiri*, 桐; *Lignum omnium levissimum, ad diversa adhibetur utensilia*. [See also the *Phon zo*, LXXXIII, 1, 2.]

The *Dryandra* or *Elæococca*, to which LEGGE refers the *tung* of the Classics, is indeed also a *tung*, but the Chinese authors distinguish it well from the *Paulownia* in terming it 罌子桐 *ying ts' tung* (*ying* is a jar, and allusion is made to the shape of the fruit) or 油桐 *yu tung* (oil-yielding *tung*). [See the drawing in *Ch.*, XXXV, 26.] This is the *Dryandra cordata*, Thunberg [*Flora japon.*, 267] or *Elæococca verrucosa*, S. & Z. A valuable oil (*tung yu*) expressed from the large poisonous seeds is much used for painting and caulking. The tree is extensively cultivated in the Yangtze valley. It is also well known in Japan.

SIEBOLD, *Syn. plant. æcon. jap.*, 181, *Elæococca cordata*; *Aburagiri*, 罌子桐. *Exprimitur oleum e seminibus*. [*Phon zo*, LXXXIII, 6, 7.]

E., 237, family 桐 [*v. supra*, 283], 梧桐 is given as a synonym.

The figures to *P.* [XXXV, 23] distinguish between *Paulownia* and *Sterculia*. *Sm.*, 168. *Jap.*, 1577, 白桐.

Jap., 846, *Elæococca cordata*, Bl., or *Eleurites cordata*, DC., 罌子桐.

Sm., 125, 233, 桐油, from *Elæococca* and *Jatropha*. (The latter in Kuangtung). *C.*, 357, 海桐皮, and 1402, 桐皮. That exported from Ningpo is probably the bark of *Acanthopanax ricinifolium*, Seem., that from Canton, the bark of the cotton tree, *Bombax malabaricum*, DC.

516.—梧 *Wu* or 梧桐 *wu tung*. LEGGE calls it *Dryandra*, but *wu tung* is still the common Chinese name for *Sterculia platanifolia*, L., a beautiful tree found in all the provinces of China.

Shi king, 494 :—The *wu tung* grow luxuriantly on the eastern slopes.

MENCIUS, 292 :—[See the quotation in 484.]

Li ki, II, 141:—A pestle of *Dryandra (wu)*. [See the quotation in 408.]

Rh ya, 283, *wu* or *chen*.

LU KI:—[See his account of the *t'ang* trees, translated in 515.] The statement that cloth can be made of the bark refers to *Sterculia*. HENRY, *l.c.*, 492:—Strings made of the young stems of *Sterculia platanifolia*.

P., XXXVa, 25, *wu t'ang*. *Ch.* [XXXV, 56] well represents, under *wu t'ang*, *Sterculia*.

Phou zo, LXXXIII, 5, 6, 梧桐, *Sterculia platanifolia*.

517.—漆 *Ts'i*, varnish or lacquer, the sap of *Rhus vernicifera*, L., which in China and Japan is collected for lacquer ware, is repeatedly mentioned in the Classics.

Li ki, I, 265 [*Yü ling*]:—Last month of spring. Orders are given to the chiefs of works to inspect the materials in the five store-houses. Varnish (*ts'i*) mentioned. II, 196:—The lid of a ruler's coffin was varnished (用漆).

Chou li, II, 469:—Vernis (*ts'i*) employé pour la fabrication des roues, des arcs, etc. II, 269:—The Province of 豫州 Yü chou (Honan) produces varnish.

Shu king, 99, 117 [Tribute of Yü]:—The Provinces of Yü chou (Honan) and 兗州 Yen chou (Western Shantung) produce varnish.

Shi king, 81:—Varnish trees planted by Duke Wan [7th century B.C.] about the mansion at T's'u (楚). 177, 190:—Varnish trees.

The *ts'i* tree is frequently mentioned in the *Shan hai k'ing*. Kuo P'o explains that it resembles the *ch'u* [*Ailantus*, see 518].

P., XXXVa, 17, *ts'i*. *Ch.*, XXXIII, 22.

Amoen. exot., 791, 792, with figure. 漆 *ts'z*, vulgo *urus*, *Arbor vernicifera*. SIEBOLD, *Syn. plant. japon.*, 258. *Phou zo*, LXXXII, 21, 22.

E., 257, family 漆. Figure a copy of *S.*, IX, 9, a *Rhus*.

Jap., 1898, *Rhus vernicifera*, DC., 漆.

" 1893, " *semialata*, Murr., var. *Osbeckii*, DC., 鹽膚木.

" 1895, " *succedanea*, L., 槿.

" 1896, " *toxicodendron*, L., var. *radicans*, Miq., 野葛.

518.—檣 *Ch'u*. LEGGE correctly calls this tree the fetid tree, but refers it wrongly to the order *Sterculiaceae*. It is the *Ailantus glandulosa*, Desf. Order *Simarubae*.

Shi' king, 231 ["Life in Pin"]:—In the ninth month they make firewood of the fetid tree (*ch'u*). 302:—I travelled through the country where the fetid tree grew luxuriantly.

Mao explains *ch'u* by 惡木 (bad wood). K'UNG YING-TA says it is called a bad tree because it is good only for fuel.

The *ch'u* is repeatedly mentioned in the *Shan hai king*. The *Shuo wen* says the name is also written 樟.

LI KI:—The bark of the *ch'u* tree contains varnish and is of a green colour. Its leaves have a fetid smell.

P. [XXXVa, 12] describes the *ch'u* together with the 椿 *ch'un*, which is the *Cedrela sinensis* [*r. infra*, 520]. LI SHI-CHEN says:—The fragrant kind is called *ch'un*, the fetid is *ch'u*. SI KUNG [7th century] states that the *ch'un* and the *ch'u* much resemble each other in their appearance, only the wood of the *ch'u* is of a loose texture, while that of the *ch'un* is firm and tough. SI SUNG [11th century] says:—These two trees are common both in the northern and in the southern provinces. The *ch'un* has fragrant leaves which can be eaten, while the leaves of the *ch'u* have an offensive smell. The people of Kiang tung call this latter 鬼目 *kui mu* (imp's eyes) or 虎眼桐 *hu yen tung* (tiger eyes *tung*). LI SHI-CHEN explains that these latter names refer to certain dots found at the base of the leaves (leaflets).

Ch., XXXV, 3, *ch'u* or 臭椿 *ch'ou ch'un* (stinking *ch'un*). A good drawing of *Ailantus glandulosa*, leaves and fruit.

This is a very common tree in Northern China. Its common name at Peking is *ch'ou ch'un*. It has the same name in Hupei [HENRY, *l.c.*, 85]. Disagreeable odour of the leaves and the flowers, whence the name. The leaves of the *Ailantus* (large pinnate, from one to two feet long) are very similar to those of the Chinese *Cedrela*, a tree likewise common in the neighbourhood of Peking. But on closer examination the leaves of the *Ailantus* are easily distinguished by the two little glands near the basis of each leaflet, to which the species name "*glandulosa*" refers. The *Ailantus* grows very easily and rapidly, and its wood is used only for fuel, as it was in the classical period. It is well known also in Europe.

Ailantus glandulosa does not occur in Japan. Japanese botanists apply the Chinese name 樗 to *Euscaphis staphyleoides*, S. & Z., *Flora japon.*, I, 124, tab. 67, (*Sambucus japonica*, Thbg., *Ailantus japonica*, Bl.), a shrub of the order *Staphyleaceae* found also in China. [See HOFFM. & SCHULTES, 237, *Ketei*, 92.] KEMPFER [*Aura*, *eccl.*, 895] applies the above Chinese character, evidently by a mistake, to *kioh* or *dara*, which is *Acanthopanax spinosum*, Miq.

E, 253, family 樗. Figure the same as to family 樗.

S., VIII, 8, the two words combined 樗樗, but two figures.

Jap., 74, *Ailantus glandulosa*, Desf., 樗.

" 930, *Euscaphis staphyleoides*, S. & Z., 野鴉樗.

519.—樗 *K'ao*. The *Shao wen* writes 樗. A tree mentioned in the *Shi king* [176, 273].

The *Rh ya* [224] calls the *k'ao* the 山樗 *shan* or mountain *ch'u*.

LU KI:—The mountain *ch'u* does not differ considerably from the *ch'u* which grows in the plain, only its leaves are narrower. The people of 吳 Wn (northern part of Cheking) gather its leaves and use them for tea. But in another

passage LU KI says that the *k'ao* [he does not say that the *kao* and the *shan ch'u* are the same] has leaves resembling those of the 樂 *li* [an oak, *c. infra*, 531], whence it is also called *k'ao li*. The bark of the tree is several inches thick. The wood is used for making wheel-spokes.

WILLIAMS [*Dict.*, 327] is of opinion that the *k'ao* may be a kind of *Rhus*.

A synonym of 栲 [*v.* 520].

520. 栲 *Ch'un*. This tree is noticed in the *Shu king* [112, "Tribute of Yü"] as growing in the Province of 荊州 King chon (Hukuang).

K'UNG AN-KUO says that another name for it is 欂 *ch'un*. This latter appears in the *Shan hai king*. KUO P'o explains that it resembles the *ch'u* (518, *Alantus*) and is well known to the people of 吳 Wu (Chekiang). The wood is good for making thills of carriages.

According to the *Shuo wen* the name is also written 欂 *ch'un*.

In *P.* [XXXVa, 12] this tree is spoken of under the name of 欂 *ch'un* [*c. supra*, 518] which is also an ancient designation, for it appears in the works of CHUANG TSZ' [4th century B.C.] as the name of a long-lived tree. As has already been stated, this is the *Cedrela sinensis*, A. Juss., (*Meliaceae*), a common tree at Peking, where it is more commonly known under the name of 香椿 *liang ch'un* (fragrant *ch'un*). Its fragrant leaf-buds in spring are used by the Chinese for food. See the drawings in *Ch.* [XXXV, 2] and the *Kiu kuang* [LIV, 6].

Phon 20, LXXXII, 17, 18, 欂 *Cedrela sinensis*.

E., 253, family 欂. Figure, *v. supra*, 518.

Jap., 541, *Cedrela sinensis*, Juss., 欂.

521. 楚 *Ch'u* (*ts'u*) and 荆 *king*. These two characters appear in the Classics as names of a plant (shrub) and have, according to the ancient commentators, the same meaning.

Originally *king* was the name of one of the nine provinces into which China was divided in the time of Emperor Yü. This province comprised the present Hupei and the greater part of Hunan, and subsequently became a large feudal state called King and afterwards Ts'u or Ch'u. The *Shi king* calls it King Ts'u.

楚 *Ch'u*, according to the *Shuo wen*, has the meaning 叢木 (trees thickly crowded) and in this sense it is used in the *Shi king* [368]. But sometimes in the *Shi* it denotes also a distinct plant. LEGGE says:—A species of thorn tree employed for fuel.

Shi king, 16:—Many are the bundles of firewood; I would cut down the thorns (*ch'u*) to form more. 115, 145:—A bundle of thorns (*ch'u*). 180:—Round and round the thorns (*ch'u*) are bound.

MAO says that the *ch'u* is a tree. Other commentators say it is a kind of 荆 *king*, and the *Shuo wen* explains *king* by *ch'u* tree. The name *king* occurs frequently in the *Shan hai king* and generally coupled with 杞 *ki* (*Lycium*).

Chou li, II, 581:—The *king* wood used for making bows. [See the quotation in 501, note.]

Li ki, II, 84 [“Teaching in the great College”]:—The canes and the thorns were there to secure in the pupils a proper awe. What LEGGE translates by “canes and thorns” is 夏 and 荆 *king* in the Chinese text. Regarding the first character the commentary refers to the *Rh ya* [223], suggesting that it stands for 榎 *hia* (*Catalpa*, v. *supra*, 508). With respect to the *king*, a passage of the *Shu king* is quoted [38, 39] where the five inflictions introduced by the Emperor SHUN are recorded. 作教刑, the stick (*king*) to be employed in schools.

Tso CHUAN, 526, referring to the year B.C. 545:—They spread some *king* (荆) branches on the ground and ate

together. This passage seems to imply that the *king* was not a thorny plant, as LEGGE states.

At Peking the names 荆子 *king tsz'* or 荆條 *king t'iao* are applied to *Vitex incisa*, Lam., a very common shrub in the neighbourhood of Peking; and the plant figured under *king tsz'* in the *Kin Huang* [IV, 4] is without doubt the same *Vitex*. *V. incisa* is extensively employed in basket making, and the name *king t'iao* (*king* twigs) refers to this use. It is also used for fuel and for burning charcoal. It is a handsome shrub; in the plain the stem is generally not thicker than the little finger, but in the mountains, when allowed to grow, it becomes a tree. I have seen trees of *V. incisa*, the trunk as thick as one's arm. It has no thorns. The leaves are compound, generally five leaflets deeply toothed. The leaves have a strong smell of *Artemisia*. It flowers in August; small blue flowers in branched panicles. It is well represented in *Ch.* [XXXIII, 27].

P. [XXXVI, 56-62] describes under the name of *king* several species of *Vitex* and also other plants. LI SHICHEN states that the names *king* and *ch'u* (for *Vitex*) are derived from the names of the ancient State in which these plants grew abundantly. The character 荆 *king* is said to have originated from 刑 *king* (punishment), for in ancient times *king* staves were used in corporal punishment.

P. speaks first of the 牡荆 *mou king* (male *king*), also called 黃荆 *huang king* (yellow *king*), the *ch'u* or *king* of the Classics. It grows abundantly everywhere in the mountains. The people cut it and use it for fuel. If not cut for many years it becomes a tree of considerable size. The heart of the wood is square. The branches grow bushy. The leaves are compound; five, sometimes seven, leaflets are inserted upon a common leaf-stalk. The leaflets are long and pointed with the margin serrate and toothed. The leaves

are fragrant. In the 5th month it produces violet flowers in panicles. The seed is as large as that of *Coriander*. This description agrees with *Vitex*. Another sort of *king* is described under the name of 蔓荆 *man king*. The first character means a creeper. LI SHI-CHEN observes that this is an improper name, as the plant does not creep; it has only a weak stem.

According to HENRY [*l.c.*, 132] 黄荆 in Hupei is *Vitex Negundo*, L.

Phon zo, LXXXIX, 15, 16, 牡荆, *Vitex cannabifolia*; S. & Z., *Ibidem*, 17, 18, 蔓荆, *Vitex trifolia*, L. SIEBOLD, *Icon. insel.*, VI, 蔓荆, 17, *arata*, Thbg., (same as 17, *trifolia*).

MORRISON, WILLIAMS and LEGGE all agree in stating that the *ch'u* or *king* is a thorny bush, and LEGGE even translates *ch'u* by thorns. I have not been able to make out to what Chinese sources of information they refer. The Chinese commentators on the Classics do not speak of the *ch'u* as of a thorny shrub, nor does *K.D.* under *ch'u* and *king* give this meaning. The *ch'u* is without doubt *Vitex*, and all the species of this genus are unarmed. I suspect that this misapprehension arose from an incorrect interpretation of the term 荆棘 which is of frequent occurrence in ancient Chinese writings. It means, according to *W.D.* [403] thorny, useless. The character 棘 *ki* [see 485] denotes, indeed, a thorny shrub, the wild jujube, which in the Peking mountains frequently grows together with *Vitex*. See the quotation from the *Tao ch'uan* [485] where LEGGE translates "briars and thorns." In the *Hui nan tsz'* we find the term 棘楚.

E., 270, family 荆. with good figure of *Vitex Negundo*, L.

The eight synonyms include also 紫荆, *Cercis chinensis*, Bge., of which a good figure is given in *P.*, XXXVI. [*V. supra*, 356.] The compilers of *E.* betray in many places their total absence of observation of nature, to say nothing of scientific research.

S., IX, 12. *C.*, 819. *A.*, XV, 166.

Sm., 227, *Vitex incisa*, Lam., is also right.

B., *Caragana flava*, for 黃荆, is doubtful [v. *H.*, 132].

Jap., 2365, *Vitex cannabifolia*, S. & Z., (*Negundo*, L.), 牡荆.

" 2366, " *trifolia*, L., var. *unifoliolata*, Schauer, 蔓荆.

A few other *Verbenaceae* are mentioned:—

Jap., 416, *Callicarpa japonica*, Thbg., 紫珠.

" 417, " *mollis*, S. & Z., 白棠子樹.

" 627, *Clerodendron divaricatum*, S. & Z., 蔞.

" 628, " *squamatum*, Vahl., 賴桐.

" 629, " *trichotomum*, Thbg., 海州常山.

" 1761, *Premna japonica*, Miq., 腐婢.

" 2289, *Verbena officinalis*, L., 馬鞭草.

522.—**籬** *Chui*. Name of a tree or shrub, the wood of which was used in divination by the tortoise-shell, to place fire on the shell.

Chou li, II, 77; I, 410:—Le préposé au bois de *tehoui* est chargé de préparer le combustible et l'outil qui sert à graver, pour les cérémonies d'auguration. Commentator B. (CHEN HÉAN):—Les fagots allumés sont posés à l'orient de la tortue. Ces fagots sont fait avec un bois particulier. Pour brûler et échoirer on se sert du bois de l'arbre 荆 *king*, espèce analogue au *tehoui* (用荆莖之類, which does not imply that the *chui* was akin to the *king*).

523.—**楊** *Yang*. I do not agree with LÉGGE that the *yang* in the *Shi* is the willow. It is the poplar, and the willow is *liu* in the *Shi*, as nowadays.

Shi king, 191:—On the low, wet grounds are willows (*yang*). 209:—On the willows (*yang*) at the east gate the leaves are luxuriant. 272:—Willows (*yang*). 280:—It floats about the willow (*yang*) boat, now sinking, now rising. 404:—It floats about the willow boat, fastened by the band of the rope. 390:—Willow (*yang*) gardens.

The *yang* is mentioned in the *Shan hai king*.

Ilia Calendar, 39 :—Third month. 秀楊. DOUGLAS translates:—Droop the willows. But the first character stands probably for 秀, and I understand this sentence to mean: the poplars are in seed.

There are in the environs of Peking two poplars, both very common trees. One of them, the *Populus alba*, L., is a tall tree with large, roundish leaves inserted upon long, slender foot-stalks; they produce a rustling noise, like *P. tremula*. The Chinese call it 白楊 *pai yang* (white poplar) or 大葉楊 *ta ye yang* (poplar with large leaves). In Hupei *pai yang* is *P. tremula*, L. [see HENRY, *l.c.*, 543]. The other Peking poplar; *P. suaveolens*, Fischer, does not attain the height of the white poplar; its leaves are also smaller, oblong, pointed. This is the 小葉楊 *siao ye yang* (small leaved poplar), called also 青楊 *ts'ing yang* or green poplar. Both are correctly described and depicted in *Ch.* [XXXV, 4, 5] only the names in the two plates have been confounded.

P., XXXVb, 27, *pai yang*. The *Ku kin chu* [4th century] defines the differences between the Chinese poplars and the willow, stating that the *pai yang* has round leaves, the *ts'ing yang* oblong leaves, and the *liu* or willow long narrow leaves.

Another ancient work, quoted in *P.*, says, regarding the white poplar, that its leaves quiver even when the air is still, producing a noise like heavy rain.

Phon zo, LXXXIV, 22, 白楊, *Populus tremula*.

V. supra, 252.

524.—The 柳 *liu* of the Classics is the willow, and especially *Salix babylonica*, L., a Chinese tree in common cultivation all over the empire. At least the Chinese nowadays by *liu* always understand this tree. LEGGE means that *liu* was the drooping willow; but although in Europe *S. babylonica* is called the weeping or drooping willow—for the European tree always represents the form with drooping branches—the

Babylonian willow in China has generally upright branches. The weeping willow is seldom seen in the north of China; the drooping of the branches is produced artificially. In the south it seems to be more frequent. At Peking they call it 垂楊柳 *ch'ui yang lin* (drooping willow).

Shi king, 155:—You fence your garden with branches of willow (*lin*). 337:—Luxuriant grow those willows (*lin*). 408:—There is a luxuriant willow tree (*lin*). Who would not wish to take shelter under it? 261:—When we set out, the willows were fresh and green. The Chinese text has 楊柳 *yang lin*.

Hsia Calendar:—First month. The willow trees (*lin*) bud. The *lin* is mentioned in the *Shan hai king*.

Chou li, II, 194:—Fire from the willow wood. [See quotation in 528, note. See also 550:—Willow trees about graves.] MAO explains *lin* by wood that has little strength; the *Shuo wen* writes 柳 *lin*, and explains the character by 小楊 (small poplar).

P., XXXVb, 21, 柳 *lin*, also 楊柳 *yang lin*. SU KUNG [7th century] says the *lin* has long, narrow leaves. CH'EN TS'ANG-K'U [8th century] states that the people of Kiangtung call the *lin* "*yang lin*." LI SHI-CHEN observes that the branches of the *yang* (poplar) are tough and erect, those of the *lin*, weak and bent down.

Ch., XXXIII, 48, *lin*, *Salix babylonica*.

HENRY, *l.c.*, 540, *yang lin*. At Ichang the name given to several species of *Salix*.

Amoen. exot., 908:—柳 *ryu*, vulgo *anjaki*, idem *sidade janagi*, i.e., *imbecillis janagi*. *Salici affinis arbor*. THUNBERG refers this to *Salix japonica*. SIEBOLD [*Syn. plant. æon. jap.*, 144] *Salix japonica*, *itojanagi*, 柳. *Phon zo*, LXXXIV, 13, 14, 柳, *Salix babylonica*.

V. supra, 238.

S., VIII, 6. *C.*, 741, 746. *Sm.*, 231. *Jap.* 1964.

525.—蒲柳 *P'u liu*, reed-mace willow, is a kind of willow mentioned in ancient Chinese writings. The commentators on the Classics (CHENG HŪAN and others) are of opinion that the character 蒲, generally denoting the reed-mace, is in one passage of the *Shi king* to be referred to the *p'u liu*. LEGGE translates it [115]:—The fretted waters do not carry on their current a bundle of "osiers" (*p'u*). In the same sense *p'u* is interpreted in the *Tso ch'uan* [314, 320]:—Will it be possible to exhaust the willows (*p'u*) in the Tung marsh? According to the *Rh ya* [252] *p'u lin* is a synonym for *yang* (poplar), but the commentators do not accept this view.

LU KI says, regarding the *p'u liu*:—There are two kinds. That with a green bark is called 小楊 *siao yang* (the willow, *lin*, according to the *Shun wen*); the other, with a white bark, is 大楊 *ta yang* (the great *yang*, or poplar). The leaves (of the former) are long, like those of the *lin* or willow. Arrow shafts can be made of the *p'u liu*, as is alluded to in the *Tso chuan* [see the quotation above]. Now the people employ it for making sieves and buckets.

The *Ku kin chu* [4th century] states that the *p'u lin* grows along the edge of the water. It has long leaves, like those of the 青楊 *ts'ing yang* [*c. supra*, 523]. It is also called 蒲楊 *p'u yang*, 水楊 *shui yang*, water-poplar. It has weak, pliable branches, which are much used by the people for making baskets, etc.

P. [XXXVb, 26] speaks of this willow under the name of *shui yang*. Ch., XXXV, 7, *shui yang*, *Salix*.

SIEBOLD, *Syn. plant. aron. jap.*, 146, *Salix kawajana-j*, 水楊; *P'hou zo*, LXXXIV, 19, 20.

Jap., 1971, *Salix purpurea*, L., 楊. *E.*, 268, family 楊, with figure of 水楊; *p'u lin* is a synonym.

526.—The character 杞 *k'i*, frequently met with in the *Shi*, has there, according to the Chinese commentators, two different meanings.

1.—The name is applied to a kind of willow :—

Shi king, 125 :—Do not come leaping into my hamlet, do not break my willow tree (*k'i*). *K'i* has the same meaning in 276.

LU KI, who interprets *k'i* in the above passages to mean a willow, says the 杞柳 *k'i liu* grows by the waterside like the willow. Its leaves are coarse and white (downy). Its wood is finely veined and of a reddish colour, it is fit for making wheel-helves. Now the people take its twigs and, after rendering them pliable by fire, use them for making trunks. It grows best on the 淇 *K'i* river (a tributary of the Wei in the north-east of Honan), also in the kingdom of Lu near the Tai mountain, on the river 汶 *Wen* (in Shantung).

MENCIUS, 270 :—The philosopher KAO said :—Man's nature is like the *k'i* willow (*k'i liu*), and righteousness is like a cup or a bowl. *K'i* and *liu* are taken by some as two trees, but more generally the commentators take them together.

2.—The other and principal meaning of *k'i* in the *Shi* is that of 枸杞 *kou k'i*, a name erroneously rendered in *W.D.* [347] by *Berberis Lycium*, and referred to the medlar by LÉGGE. The *kou k'i* is *Lycium chinense*, Mill., the Chinese box-thorn.

Shi king, 248 :—The doves on the bushy medlars (*k'i*). 266 :—I ascended the hill in the north to gather the medlars (*k'i*). 272 :—On the hills of the south are medlars (*k'i*). 360 :—I ascend that northern hill and gather the medlar. 359 :—Medlars in the marshes.

In the *Rh ya* [257] 枸杞 *kou ki* is given as a synonym of *k'i*. The *Shuo wen* writes 枸杞, as the name is now written.

LU KI :—The *k'i* is a tree which resembles the *ch'u* (*Ailantus*, see 518). It is also called 苦杞 *k'u k'i* (bitter *k'i*) and 地骨 *ti ku*. In spring it affords a savoury food (the

leaves); it is somewhat bitter. In its stem it resembles the 莓 *mei* (raspberry). The fruit ripens in autumn and then becomes red. Leaves, stem and fruit have medical virtues.

P., XXXVI, 47, *kou k'ei*. Many synonyms given. The *Pie lu* [5th century] calls it 羊乳 *yang ju* (goat's teat), from the shape of the fruit. SU SUNG [11th century] says that the *kou k'ei* is a common plant. The young leaves, when they first appear in spring, are like those of the pomegranate tree, but softer and thinner. They are eaten, and known by the name of 甜菜 *t'ien ts'ai* (sweet vegetable). The plant grows in a bushy manner to the height of three or four feet. In the 6th or 7th month it puts forth small purplish flowers and afterwards produces a red, oblong fruit like a jujube. Its root is called 地骨 *ti ku* (earth bone). Other ancient authors say that the *kou k'ei* is provided with thorns, but they are wanting when it grows high. The fruit also varies in shape, being sometimes globular.

LI SHI-CHEN states that the best sorts of *kou k'ei* are found in the Provinces of Shen-si and Kansu, where it grows to the height of a tree. The fruit, which resembles a cherry, is dried. It tastes like the grape. The fruit and root are used as medicines.

The plants figured in the *K'iu huang* [LVI, 1] and *Ch.* [XXXIII, 25] under *kou k'ei* are *Lycium*. What I received under the same Chinese name from the Belgian missionaries in the Ordos were the dried berries of a *Lycium*. KREITZER states [in the *Oestr. Monatsschr. f. d. Orient*, 1883, p. 73-76] that in Kansu the red berries of a wild-growing shrub are dried and exported to all the provinces of China under the name of *kou chi*. They are said to have an intoxicating effect. Several species of *Lycium* have been gathered in those regions by Russian travellers (PREZEWALSKY, PIASSETSKY, POTANIN), *L. chinense*, *L. turcomanicum*, *L. ruthenicum*,

L. chinense is a common plant in Northern China as well as in the South. At Peking it is a rambling shrub (never arborescent), sometimes twining, with long, weak recurved or pendulous branches, armed with short spines. Leaves lanceolate, oblong. Violet flowers in the axils of the leaves. The fruit is a small ovoid red berry, not eatable. HENRY *l.c.*, 185:—In Hupeh *Lycium chinense* is *kan k'i*.

Phon 20, LXXXIX, 3, 4, 枸杞. *Lycium chinense*.

E., 283, family 枸杞, with good figure and 15 names.
S., XII, 20. *A.*, XV, 164. *C.*, 607. *Pr.*, 232. *Sm.*, 37.

Of *Solanaceæ* are mentioned:—

Jap., 445, *Capsicum anomalum*, Fr. & S., 龍珠.

" 447, " *longum*, L., 番椒.

" 761, *Datura alba*, Nees., 曼陀羅花.

" 1337, *Lycium chinense*, Mill., 枸杞, 枸棘.

" 1346, *Lycopersicum esculentum*, Mill., 六月柿.

" 1498, *Nicotiana Tabacum*, L., var. *macrophyllum*, 烟草.

" 1621, 1622, *Physalis*. [*V. supra*, 55, 144.]

" 2031, *Scopolia japonica*, Max., 莨菪.

" 2100, *Solanum Dulcamara* [*v. supra*, 79].

" 2101, " *lyratum*, Thbg., 蜀羊泉.

" 2102, " *Melongena*, L., 茄.

" 2103, " *nigrum*, L., 龍葵.

" 2105, " *tuberosum*, L., 馬鈴薯.

527. 一種 *Ch'eng*, *Tamarix*.

Shi king, 450:—He opened up and cleared the *Tamarix* trees and the stave trees [*v. infra*, 554].

Rh ya, 250, *ch'eng* or *ho liu* (river willow).

LU KI:—The *ch'eng* or river willow grows by the water-side. Its bark is of a dark red colour. Its branches and leaves resemble those of the pine. It is also called 雨師 *yü shi* (the master of rain).

P., XXXVb, 25, 檉柳 *ch'eng liu*, also 垂絲柳 *ch'ui si' liu* (drooping floss-silk willow). The *Rh ya i* states:—The

cheng liu is a very graceful tree. Its leaves resemble floss-silk. The tree knows when rain is imminent, and indicates it by its leaves moving. It is not injured either by hoar-frost or snow. K'OU TSUNG-SHI [beginning of the 12th century] says that it is commonly called 三春柳 *san ch'un liu* (three springs' willow), for it flowers three times a year. LI SHI-CHEN adds that it is a small tree with a red bark and weak branches; leaves like floss-silk; pale red flowers, like those of the *liu* (*Polygonum*), in spikes from three to four inches long. In *Ch.* [XXXV, 37] a rude figure of the *cheng liu*. Evidently *Tamarix* is intended.

Three species of *Tamarix* are known in China, viz.: *T. chinensis*, Lour., *T. juniperina*, Bge., *T. Pallasii*, Desv. *T. chinensis* is the most common of these three and seems to be found all over China. It is a tree of middle size, with minute acute imbricate leaves. The twigs are glabrous and of a reddish brown colour. Panicles formed of long, dense spikes of small, pale red flowers. Its common name at Peking is *san ch'un liu*.

Kua i, 104, 三春柳, *Tamarix chinensis*, *Phou zo*, LXXX, 18, 19, 檉柳 *T. chinensis*.

E., 305, family 赤檉, with figure apparently of *Tamarix*, and 11 names.

E., 264, family 柳, has the name 檉, from the *Rh ya*, as a synonym.

Jap., 2174, *Tamarix chinensis*, Lour., 檉柳.

A., XV, 138, 觀音柳, is one of the synonyms. *E.*, 305.

528.—榆 *yü* and 粉 *fen*, in the *Shi king*, are the elm. [See above, 304, *Rh ya*], *Pai fen* (white *fen*) another name for *yü*.

Shi king, 176 :—In the low, wet grounds are the white elms (*yü*). 206 :—There are the white elms (*fen*) at the east gate.

Li ki, I, 188 :—Elm-juice (榆沈) for the funeral carriage of the king. CHENG HÜAN explains it by 榆白皮之汁 (the juice from the white bark of the elm). According to the

common view, says LEGGE, the funeral carriage used by the king and princes was very heavy and difficult to drag along. To ease its transit, a juice was prepared from the elm bark and sprinkled on the ground to make it slippery. I, 451 ["Food of the Ancient Chinese"] :—Leaves of the elm-tree, fresh or dry, and the most soothing rice-water to lubricate them, and with fat and oil to enrich them. The Chinese text has only 枹榆, "leaves" is not in the text. According to P., the leaves as well as the young fruit and the bark of the elm can be eaten.

Chou li, II, 194 :—Fire from elm-wood.²⁰ II, 466 :—Fabrication des chars. Ouvriers des roues. Le débitage des trois sortes de pièces qui constituent la roue, doit se faire dans la saison propre.²¹

V. supra, 263, 304.

Jap., 183, *Aphananthe aspera*, Planch., 榎樹.

529.—枹 *Ki*, name of a tree repeatedly mentioned in the *Shan hai king*. Kuo P'o explains :—It is a tree of Shn (Sz'ch'nan) which resembles the elm. It is burnt, and the ashes are employed as manure for rice-fields.

²⁰ *Chou li*, Le :—Le préposé au feu (司燔) est chargé du règlement relatif à l'usage du feu. Dans les quatre saisons il modifie la nature du feu qui s'allume dans le royaume, afin de soulager les maladies de la saison.

Commentator A. (CHENG SZ-NUNG) :—Au printemps on prend le feu de l'orme (榆) et du saule (柳); en été on prend le feu du jujubier (棗) et de l'abricotier (杏); à la fin de l'été on prend le feu du mûrier (桑) et de l'arbre *teho* [柘, *Cudrania*, v. *supra*, 501]. En automne on prend le feu de l'arbre *tao* [柞 an oak, v. *infra*, 534] et de l'arbre flexible *yeou* [檉 v. *infra*, 537]. En hiver on prend le feu de l'arbre *hori*, *Bignonia tomentosa* [槐 which is *Sophora japonica*, v. *infra*, 546] et de l'arbre de charbonnage *teheu* [榿 v. *infra*, 540].

²¹ Commentator B. (CHENG HCAN) :—On emploie trois sortes différentes de bois pour faire les raies, le moyen, la jante. Maintenant (sous les Han) on emploie pour les raies diverses sortes d'ormes (雜榆); pour le moyen le bois dur de l'arbre *than* [檀 v. *infra*, 540]; pour la jante le bois de l'arbre 榿 *kiang* [v. *infra*, 536] qui résiste à l'usage.

530.—樛 *Ch'u*. A tree of the *Shi*. LEGGE translates "thorny elm." *Shi king*, 176 :—On the mountains are the thorny elms.

Rh ya, 241, *ch'u*, where K'UO P'U states that this is the thorny elm.

LU KI :—The *ch'u* tree has thorns like the *che* [*Cudrania*, 501]. Its leaves resemble those of the elm, and may be eaten cooked : they are more mucilaginous than those of the white elm. There are ten different sorts of elms, they resemble each other in their leaves but differ in the bark and the texture of the wood.

This thorny elm, noticed also in *P*. [article *Yü*, elm] is probably the *Hemiptelea Davidiana*, Planch., a shrub or small tree of the order *Ulmaceæ*, provided with large thorns, not uncommon in the Peking plain and in the mountains. The Chinese call it 刺榆 *ts'ü yü* (thorny elm).

Synonym of *Ulmus*, *E.*, 269 [*v. supra*, 263, etc.].

531.—樛 *P'ü*, name of a tree in the *Shi*.

Shi king, 412 :—Abundant is the growth of the *yü* [an oak, *v. infra*, 534] and the *p'ü*, supplying fire-wood.

Rh ya, 284, *p'ü*, also called 抱 *pu*. The *Shuo wen* says the *p'ü* is a *tsao* (juniper).

HENRY, *l.c.*, 377 :—朴樹 *p'ü* or 樛 *p'ü* at Patung is *Celtis sinensis*, Pers.

HOFFM. & SCHULTES, 129 :—In Japan 樛 is *Celtis maku* (*Homojoreltis asperata*, Bl.), and [130] 朴, *C. Willdenowiana* [= *C. sinensis*, Pers.].

C., 1040. *Jap.*, 546, *Celtis sinensis*, Pers., 朴樹.

532.—六駝 *Liu po* (six *po*) in the *Shi king* [201] is a doubtful designation of a tree. LEGGE translates it by "six elms."

The character *p* is also written 駝 [see *W.D.*, 708]. In the *Rh ya* [271] it is said to be a red plum, but in the section on domestic animals *po* is given as the name of an animal

like a horse with strong teeth, which eats tigers and leopards. According to the *Shu hui king*, it is a white beast with a black tail. MAO takes the *po* of the *Shi* to be an animal. But LU KI makes it to be a kind of elm called 梓榆 *tsz' yū*, the rind of which is white and green like a piebald horse, whence the name.

HOFFM. & SCHULTES, 198:—六駁 *Daphnidium lanceifolium*, S. & Z., of the order *Laurineae*.

E., 269, family 榆, *Ulmus*, 駁 is one of the nine synonyms.

E., 220, family 李, *Prunus*, it is also a synonym.

Laurineae [*v. supra*, 512].

533.—Another obscure tree, said to be an elm, is mentioned in the *Chou li* [II, 391]:—Le frappeur du tambour en terre cuite, chargé de tuer les mauvais esprits de l'eau, prend une branche d'orme mâle; il la perce en travers avec une dent d'éléphant et la plonge dans l'eau. Alors les esprits meurent. The male elm in the Chinese text is 牡樺 *mou ku*. CHENG HŪAN explains it by 枯榆 *k'u yū*.

534.—Five or six names of trees mentioned in the Classics refer to Oaks. Some of these names are still in use, but it seems that the same appellations are applied to different species in different parts of China. China seems to be rich in oaks. F. B. FORBES [in the *Journal Bot.*, 1884, p. 80] enumerates 28 species of *Quercus* hitherto observed by European botanists in China.

Father CIBOT [in the *Mémoires conc. les Chinois*, III, 482] states, in an article on Chinese oaks, that the ancient Chinese called the oak "l'arbre de l'héritage." I have not been able to make out to what passage of the Classics or other ancient writings he refers.

Shi king, 201:—Bushy oaks (櫟 *li*) on the mountains. 183:—The wild geese settle on the bushy oaks (櫟 *hū*). 248:—Doves on the bushy oaks (*hū*). 301:—Yellow bird, do not settle on the oaks (*hū*).

Ibid., 373:—Split the branches of the oaks (柞 *tso*) for fire-wood, amid the luxuriance of their leaves. 403:—On the branches of the oaks (*tso*) how abundant are the leaves! 441, 450:—The oaks (*tso*) and the *yü* (槭) were thinned, and roads for travelling were opened. 445:—Thick grow the oaks (*tso*) and the *yü*, which the people use for fuel. 442:—Abundant is the growth of the *yü* and the *p'o* (櫟) supplying fire-wood.

Chou li, II, 387:—Les arracheurs des arbres (柞氏) sont chargés de l'abatage des arbres, de la destruction des plantes sauvages, du défrichement des forêts et des côtes boisées. II, 194:—Fire from the wood of the 柞 *tso* tree. [See quotation in 528, note. See also *supra*, 469.]

Rh ya, 264:—The fruit of the 櫟 *li* is called 栲 *k'iu*. SUN YEN explains that this is the 橡 *siaug*.

Rh ya, 239:—栲 *hü*, same as 杼 *chu*. KUO P'o says:—Same as 柞 *tso*. The *Shuo wen* says the fruit of the 栲 *hü* is 橡 (this character here, according to *K.D.*, stands for 櫟) or 皂 *tsao*.

Of the above names, 橡, 櫟, 柞, 杼, 槭 appear also in the *Shan hai king*.

CHENG HÜAN, in commenting upon the *Shi*, says that 柞 and 櫟 are the same.

LU KI:—The 櫟 *li* tree. The people of 秦 Ts'in (Eastern Kansu and Shensi) call it also 柞 *tso*, the people of Ho nei (Northern Honan) 木蓼 *mu liao* or *li*. It is allied to the 椒櫟 *ts'iao sha* [LU KI is mistaken. Compare the *Rh ya*, 329]. The house of the seed (子房, he means the cupule of the acorn) is called 栲 *k'iu*.

In another place LU KI states:—The 栲 *hü* is now called 柞 *tso* or 櫟 *li*. The people of 徐州 Sü chou (Northern Kiangsu) call it *li* or 杼 *chu*, also *hü*. Its fruit is called 皂 *tsao* or 皂斗 *tsao tou*. Its covering (the cupule) contains a

sap which is used for dyeing black. In 京洛 King lo (Honan) and Ho nei (Northern Honan) they call it 柂汁 *chu chi* or 橡斗 *siang tou*, or *li*.

LU KI notices further the 槲 *yā* as an oak, stating that it is the same as the *tso*. One kind, with a white wood without a red heart, is called 白栎 *pai jui*. It has straight veins, is easily split, and is good for making cases, axles, lances and spears. But the *pai jui*, or *yā*, according to the *Ik ya* [300], is not an oak.

In *P.* [XXX, 53, article 橡實 *siang-fruit*] all the above names are given as synonyms of *siang*. These names are probably applied to several allied species of *Quercus*.

SU SUNG [11th century] says:—櫟 *li* or 柞 *tso* is the name of the wood, whilst the fruit (rather the cupule) is called 橡斗 *siang tou*. It is used for dyeing black. The cupules of the 櫟 *hu* [another oak, see 535] can be used for the same purpose, but the *siang tou* is considered the best. The *siang* tree grows from 20 to 30 feet high.

K'OU TSUNG-SHI [beginning of 12th century] states:—The leaves of the *li* tree resemble those of the chestnut. The wood although tough is not much valued as timber, but the best charcoal can be made of it. The cupules of the fruit are employed in dyeing black.

LI SHI-CHEN adds:—There are two sorts of the *li* tree. One of them does not bear fruit, the heart of its wood is red. This is called 槲 *yā* and is mentioned in the *Shi* together with the *tso*. The wood of the other kind, which produces fruit, is called 栎 *hā* and its fruit 橡 *siang*. Yellow flowers like those of the chestnut. This is much cultivated in the Northern provinces. Large trees, the timber used for pillars, the smaller trees for fuel and for making charcoal. The fruit is eaten by the people; it is also good for fattening swine.

The 橡 *siang* at Peking is the *Quercus Bungeana*, Forbes (*Q. chinensis*, Bge.). D'INCARVILLE calls it *Q. castaneifolia*.

It is a tree of middle size, common in the mountains. Its leaves strongly resemble those of the chestnut. The cupule is covered outside with long, lanceolate, reflexed scales. The Chinese call this cupule 橡碗子 *siang wan tsz'* (*wan* a cup) and use it extensively for dyeing black.

The drawing of the *siang* in *Ch.* [XXXII, 41] is very rude, but it seems *Quercus Bungeana* is intended.

C^L. ABEL [see his *Journey in the Interior of China*, 1816, 1817, p. 165] gathered near the Poyang lake in Kiangsi two oaks which R. BROWN named *Q. chinensis* and *Q. densifolia*. They were used by the natives as pollards, considerable quantities of the branches being accumulated for fire-wood or for charring. These may have been among the oaks referred to in the Classics. HENRY [*l.c.*, 233, 234, 235] mentions several oaks to which in Hupei the names *li* and *siang* are applied.

The *Q. Bungeana* is not found in Japan. The Japanese botanists have applied the Chinese names *siang* and *li* to an allied small-leaved species, the *Q. serrata*, Thbg. *Amæn. exot.*, 816:—櫟 *reki*, vulgo *kunugi*, etc. *Ilex rubra*, ligno in rufum languente, durissimo. SIEBOLD [*Syn. plant. æon. jap.*, 153] *Q. serrata*, *kunugi*, 櫟. Cortex adhibetur ad nigrum tingendum. *Phon zo*, LXVI, 18:—橡實, *Q. serrata*.

E., 236. *V. supra*, 239.

535.—櫟 樛 *P'o su*. LEGGE calls it the scrubby oak.

Shi king, 34:—In the forest there are the scrubby oaks. MAO says the *p'o su* is a small tree.

Rh ya, 300:—We read there *su p'o* instead of *p'o su*. According to Kuo P'o, an oak.

P., XXX, 55, 櫟實 *hu shi* (fruit) or 櫟 樛 *hu su* or 櫟 樛 *p'o su*, also 大葉櫟 *ta ye li* (large-leaved *li*) and 櫟 樛子 *li kiang tsz'*.

SU SUNG [11th century]:—The *hu* is a common tree in the mountains. It is akin to the *li* (*i.e.*, it is likewise an oak). The acorns are smaller and are not gathered, as they

are of no use. But the bark and leaves are employed in medicine.

K'OU TSUNG-SHI [beginning of the 12th century] states:—The wood of the tree is hard, but not much valued as timber; it is more generally employed for fuel and for charring; but this charcoal is inferior to that obtained from the *li* wood.

LI SHI-CHEN:—There are two kinds of *hu*. One is small, grows in a bushy manner; the *Rh ya* calls it 栲 *pao* [r. *supra*, 284, probably *Celtis*]. The other, called *ta ye li*, is a tall tree with large, thick, coarse leaves which fall off in winter. Flowers like those of the chestnut. The fruits resemble those of the *siang* [see the preceding], but are smaller; they have a cupule. Although the acorns have an unpleasant taste, they are eaten by the people in time of scarcity. The wood is coarsely veined, and less valued than that of the *siang*.

At Peking the name *hu* is applied to *Quercus dentata*, Thbg. (same as *Q. obovata*, Bge.), but the tree is more commonly known under the name of *po lo shu*. The leaves of this oak are sessile, obovate, sinuate, of enormous size on young specimens, sometimes nearly two feet long. The cupule outside is scaly, like that of *Q. Bungeana*, but the scales consist of thin filaments. This species, and probably some other broad-leaved oaks, may have been the *p'o su* of the *Shi*, used for fuel.

Ch. [XXXII, 40] figures under *hu shi* an oak with acorns, probably *Q. dentata*. HENRY [l.c., 125], *hu li*, *Quercus aliena*, Bl.

Amara. exot., 816:—栲 *koku*, vulgo *kasjuca*. *Ilex alba* ligno candido. SIEBOLD [*Syn. plant. æcon. jap.*, 155]:—*Quercus dentata*, *kasica*. Same Chinese name as above.

Phon zo, LXVI, 20, 栲, *Q. variabilis*, Bl., and 24, 大葉栲, *Q. aliena*, Bl.

V. supra, 308.

536.—**樗** *Kiang*. Name of a tough wood mentioned in the *Chou li* [II, 466], fit for making felloes. [See the quotation in 528.] The same is repeatedly noticed in the *Shan hai king*. Kuo P'o says that it is used in making carts. As we have seen [535], Li SHI-CHEN takes the *kiang* to be an oak.

In the *Description of Japanese Timber Trees*, 樗 is a popular name for *Quercus acuta* and *Q. glauca*.

537.—**櫟** *Yu*. [See the *Chou li*, II, 194; quotation in 528, note]:—Fire from the *yu* wood. The *Shuo wen* says the *yu* is a flexible wood used for making felloes. The *yu* tree is frequently mentioned in the *Shan hai king*. Kuo P'o says:—**剛木** *kang mu*, a hard wood used in making carts. The *kang mu* is likewise noticed in the *Shan hai king*. Kuo P'o says that it resembles the **欖** [r. 540] and the **栢** [r. 501]. It is probably also an oak. *Ch.* [XXXVII, 5] and the *Kiu huang* [LIV, 23] under **青岡木** *ts'ing kang mu*, describe and figure oak.

The dictionary *Ku-ang yüan* (T'ang dynasty) identifies the *yu* with *ts'o* (oak); the dictionary *T'ang yüan* says it is a red wood.

According to GEERTS, *Japanese Woods*, 櫟 in Japan is *Quercus crispula*, Bl.

538.—**楸** *Chou*. Name of a tree mentioned in the *Shan hai king* and the *Shuo wen*.

According to HENRY [*l.c.*, 82] this Chinese name is applied in Hupci to *Quercus glauca*, Thbg., and other species. The wood is very hard. The *chou* tree is figured in *Ch.* [XXXVII, 1], and is said to grow in Hunan. Two varieties, a red and a white, are noticed.

539.—**槲** *Chu*. This name is of frequent occurrence in the *Shan hai king*. Kuo P'o explains that it is an evergreen

tree resembling the 柞 *tso* (*Quercus*). It produces an edible fruit. Incorruptible timber used for posts in building houses.

P., XXX, 52, 櫟子 *chu tsz'*. LI SHI-CHEN says that there are two kinds of *chu*. One of them is a large evergreen tree with serrate, shining leaves resembling those of the chestnut. The fruit is as large as that of the *hu* [*Quercus*, 535], pointed. The edible seed (acorn) is enclosed in an involucre (cupule) and is known under the name of 甜櫟子 *t'ien* (sweet) *chu tsz'* or 麪櫟子 *mien* (mealy) *chu tsz'*. The other kind is the 苦櫟子 *k'u* (bitter) *chu tsz'*. Its wood is coarsely veined and of a red colour. It is also called 血櫟 *hūe* (blood) *chu*.

The first of the trees mentioned, that with edible acorns, is, according to HENRY [L.c., 95], *Quercus sclerophylla*, Lindl. Both are figured under the above names in *Ch.* [XXXII, 46, 44].

SIEBOLD, *Icon. ined.*, VII, and *Flora Japon.*, I, 170, *Quercus glabra*, Thbg., sinico 櫟. Acorns eaten. See also the *Phon zo* [LXVI, 15], same Chinese name, *Q. glauca*, Thbg. *Ibidem*, 苦櫟, *Quercus acuta*, Thbg. The same species in *Japanese Woods* [Home Department] has the Chinese name 血櫟.

Of *Cupuliferae* are mentioned:—

- Jap.*, 338, *Betula alba*, L., var. *vulgaris*, DC., 樺木 [v. 553].
 " 114, *Alnus maritima*, Nutt., var. *jap.*, Reg, 赤楊.
 " 690, *Corylus* [v. 496].
 " 1834, *Quercus acuta*, Thbg., 血櫟.
 " 1836, " *cuspidata*, Thbg., 柯樹.
 " 1837, " *dentata* [v. *supra*, 308].
 " 1839, " *glandulifera*, Bl., 枹.
 " 1840, " *glauca*, Thbg., forma *sericea*, 麪櫟.
 " 1841, " *gilva*, Bl., 石櫟.
 " 1847, " *serrata*, Thbg., 櫟.
 " 937, *Fagus Sieboldi*, Endl., var. *undulata*, Bl., 山毛櫟.

510.—檀 *T'an*. LEGGE calls this tree the sandal tree.

Shi king, 127:—Do not break my sandal trees. 169:—“*K'an k'an*” go his blows on the sandal trees, and he places what he hews on the river's bank. 266:—His chariot of sandal-wood must be damaged, his four horses must be worn out. 297:—Pleasant is that garden with the sandal trees. 436:—Chariots of sandal-wood mentioned in connection with the famous battle at 牧野 *Mu ye*, which issued in the overthrow of the Shang dynasty, B.C. 1122.

Li ki, I, 125:—檀弓 *T'an kung* (bow of *t'an* wood). Title of a chapter in the *Li ki*, on mourning rites.

Chou li, II, 194:—Fire from the *t'an* wood. II, 466:—*T'an* wood used for making wheel-naves. [See quotation in 528, note.]

The *t'an* tree is frequently mentioned in the *Shan hai king*. MAO explains the character *t'an* in the *Shi* by strong and flexible wood.

LU KI:—The bark of the *t'an* tree is green and glabrous, resembling the rinds of the 繫迷 *hi mi*³² and 駉馬 *p'o ma* [*r. supra*, 532].

P., XXXVa, 37, *t'an*. LI SHI-CHEN says:—A tree with a finely veined hard wood and leaves resembling those of the *huai* [*Sophora*, v. *infra*, 546]; purple flowers.

According to HENRY [*l.c.*, 442] *t'an* in Hupei is the *Dalbergia hupeana*, Hance, which is figured in *Ch.* [XXXV, 24] and yields a good, hard wood.

Phon 20, LXXXIII, 13, 14, 檀:—Only leaves figured. HOFFM. & SCHULTZ [102] give the same Chinese characters as one of the names for *Cesalpinia japonica*, S. & Z.

³² The *hi mi* is, according to the ancient *Kuang chi*, the name of a fruit, small and globular, resembling the *Diospyros Lotus*, sweet and somewhat bitter. [See P., XXXIII, 33].

E., 254, family 檀, with figure of a tall tree with thorny stem, alternate leaves and single berries. 白檀, *II.*, 444, *Symplocos cratagoides*, Don., is one of the synonyms. *Symplocos*, however, is unarmed and has other fruits. *P.* [XXXV, 37] has a figure of *Can*, also called 黃檀, the yellow *Can*, also a synonym of *E.*, 254. Another figure in *P.* [XXXIV, 35] 檀香 or Sandal wood.

Sm., 192. *Jap.*, 1988, *Santalium album*, L.

II., 443, gives 青檀 as the Ichang name for *Celtis sinensis*. *V. supra*, 531.

541.—扶蘇 *Fu su*. An obscure tree mentioned in the *Shi king* [138]. MAO says:—A small tree. One of the commentators thinks that a mulberry tree is meant.

542.—舜 *Shun*, more correctly written 蕢. LEGGE calls it the ephemeral hedge tree.

Shi king, 136:—There is the lady in the carriage with a countenance like the flower of the ephemeral hedge tree.

MAO explains *shun* by 木槿 *mu kin*. The *Shuo wen* says that its flowers blossom in the morning and fall off at night.

Regarding the *mu kin*, see the *Rh ya* [6]. It is the *Hibiscus syriacus*, L. The philosopher CHUANG TSZ' [4th century B.C.] calls it 日及 *ji ki* (the ephemeral).

Li ki, I, 275 [*Yue ling*]:—Second month of summer. The tree *Hibiscus* [*mu kin*] flowers.

LU KI:—*Shun* or *mu kin*. The people of 齊 *Ts'i* and 魯 *Lu* (Shantung) call it 王蒸 *wang cheng*.

MU KIN is still the common name for *Hibiscus syriacus*, which is much cultivated as an ornamental shrub all over China. I may, however, observe that the ancient Chinese appellation "ephemeral flower" seems rather to hint at *Hibiscus mutabilis*, which is likewise much cultivated in China.

P., XXXVI, 64, *mu kin*, good description of *H. syriacus*. It is well represented in the *Kiu huaug* [LIV, 3] and *Ch.* [XXXV, 34]. In Hunan and Hupei it is much used for hedges.

Iman, erot., 858 :—櫨 *kin*, vulgo *mu kunge*. *Malva frutex hortensis* . . . folio auriculato, flore in purpureum cœruleo. *Phou zo*, XC, 1-8 :—木櫨, various varieties of *M. syriacus* figured.

V. supra, 6, 369.

543 —櫨 *Hu*. LEGGE calls it arrow-thorn.

Shi king, 441 :—On the foot of the Han mountain (旱, unknown where it was) is the arrow-thorn.

Shu king, 112 ["Tribute of Yü"] :—The *hu* tree produced in the province of King chow (Hupei). K'UNG AN-K'UO says it was good for making arrows. LEGGE states that Confucius on one occasion refers to the famous *hu* arrows.

The *hu* is mentioned in the *Shan hai king*.

LU K'U :—The *hu* resembles the 刺 *king* [*Vitex*, v. *supra*, 521] but has a red stem resembling the 蓍 *shi* [the divining plant, v. *supra*, 428]. The people of 上黨 Shang tang (South-eastern Shansi) employ it in basket-making and for ladies' hair-pins.

That is all we know from the ancient authors regarding the *hu* tree. Although LEGGE calls it the arrow-thorn, Chinese authors do not say that it has thorns. It seems that this tree or shrub is still known under its ancient name in China. We find the *hu* mentioned in the *Shansi t'ung chi* as growing in Lu an fn.

E., 271, family 櫨, without figure.

544.—扭 *Niu*.

Shi king, 176 :—In the low, wet grounds is the *niu* tree. 273 :—On the hills of the north is the *niu* tree.

The *niu* tree is frequently mentioned in the *Shan hai king*. According to the *Rh ya* [230] it is also called 櫨 *i*. KUO P'U says it resembles the 櫨 *ti* [*Prunus*, v. *supra*, 476].

The 櫨 *i* is mentioned in the *Chou li* [II, 194] as a tree of which bows can be made. [See the quotation in 501, note.]

The *Shuo wen* explains *i* 槐 *ch'ui* [*Cedrela*, v. *supra*, 520].

LU KI:—The leaves of the *nin* or *i* tree resemble those of the apricot, but are more pointed, white (downy). Its bark is red. The wood grows very crooked. Luxuriant leaves. In the second month it opens its white flowers like those of the 楝 *lien* (*Melia*) with a silky appearance and small stamens. The tree is now cultivated in the government gardens. It goes also by the name of 萬歲 *wan sui* (the myriad years or everlasting). Its original name is explained by 億 *i*, which means myriads. The leaves are handsome. The tree is much cultivated at the foot of mountains. It is also called 牛筋 *nin kin*. Its wood is used for bows.

LEGG states that in the Japanese plates the *nin* is figured as the Privet or *Ligustrum*.

E., 147, family 卷柏. *Lycopodium*, *Wan sui* is a synonym.

E., 307, family 南燭, with figure of a tree, probably not *Ligustrum*.

E., 307, family 女貞, with a pretty good figure of *Ligustrum*; has *nin kin* as a synonym.

Jap., 1267, *Ligustrum Ito*, Sieb., 水蠟樹.

" 1268, " *japonicum*, Thbg., 女貞.

Other *Oleaceae* are mentioned:—

Jap., 965, *Forsythia suspensa*, Vahl., 連翹.

" 971, *Fraxinus pubinervis*, Bl., 樗.

" 1188, *Jasminum floridum*, Bge., 黃素馨.

" 1189, " *grandiflorum*, L., 素馨.

" 1191, " *Sambac*, Ait., 茉莉.

" 1192, " *Sieboldianum*, Bl., 迎春花.

" 1509, *Olea fragrans*, Thbg., 木犀, 桂花.

Melia azedarach, L., var. *subtripinnata*, Miq., is 楝 *Jap.*, 1409.

Melia Toowendan, S. & Z., 川楝 *Jap.*, 1411.

545.—楝 *I*. A tree mentioned in the *Shi king* [359]:—In the marshes are the medlar (*k'i* v. *supra*, 526) and the *yi*.

It is said [*Rh yu*, 294] that the *i* is also called 赤棟 *ch'i ts'u* (red *ts'u*) and that a white kind is simply called *ts'u*.

LU KI:—The leaves of the *ts'u* resemble those of the 柞 *ts'o* (an oak). Its bark is thin and white. Another kind is called 白棟 *ts'u*. It has a red wood. This is the *i* tree. The former is also called 白棟 *ts'u* (white *ts'u*). Its wood is hard and pliant, suitable for making wheel-naves.

546 — 槐 *Huai*. A tree mentioned in the *Chou li*.

Chou li, II, 347, 348:—Règlement de l'audience officielle de l'extérieur. À gauche il y a neuf buissons d'épine (棘 *Zizyphus*, v. *supra*, 485). Les vice-conseillers, ministres ou préfets se tiennent debout à ces neuf places. Les gradués sont derrière eux. À droite il y a aussi neuf buissons d'épine. Les princes fondateurs des cinq ordres *Kong*, *Hou*, *Pe*, *Tseu*, *Yau* (公, 侯, 伯, 子, 男) se tiennent debout à ces neuf places. Les officiers secondaires sont derrière eux. En face sont les trois arbres *hou* (槐) *Bignonia tomentosa*. Là se tiennent debout les conseillers multiples. Les chefs d'arrondissement se pressent derrière eux. *Ibidem*, II, 194:—Fire from the *huai* wood. [See quotation in 528, note. See also in 550, *huai* trees planted about the graves of functionaries.]

Huai is now the common name for *Sophora japonica*, L., a tree very common throughout China. It is frequently mentioned in the *Shou hai king*. It would, however, seem from the *Rh yu* [288-290] that in ancient times the name *huai* was applied to several trees of the leguminous order. *P.* [XXXV, 31] describes under this name only *Sophora japonica*. It is well represented in *Ch.* [XXXIII, 19].

Auren. exot., 841, 槐 *quai* vulgo *jens* et *quai kaku*. Arbor foliis ex quatuor lobis, uno costam claudente pinnatis, siliquis articulatis. Exotica arbor et hoc caelo rara ac fere sterilis. An Tamarindus. *Jens'u* is, according to THUNBERG, the Japanese name for *Sophora japonica*. KEMPFER evidently

describes this tree, of which he probably saw a poor specimen. Its pinnate leaf has from 11 to 15 leaflets. *P'hou zo*, LXXXIII, 10-13, 槐, *Sophora japonica*.

E., 255, family 槐, with recognizable figure of *Sophora*.

C., 502, 505. *Pr.*, 58, 195. *Sm.*, 201. *S.*, IX, 4. *H.*, 130.

V. supra, 356.

517.—In the *Hia Calendar*, 43, third month, we read 采藏. DOUGLAS translates:—Plucked are the *Taraxacum pinnatifidum*. I am not aware upon what authority this identification is based. DOUGLAS refers the 藏 *shi* of the *Hia Calendar* to the plant 苦藏 *k'u che* of the *Pen ts'ao kang mu*, which name is there applied to two different plants [see *P.*, XVI, 33, 37]. One of them is a *Physalis*. [*V.* the *Rh ya*, 144]. I should rather think that the *shi* of the *Hia Calendar* is the 苦藏 *k'u shi*, a medicinal plant noticed in the *Shen nang pen ts'ao* and otherwise called 苦參 *k'u shen*. [See *P.*, XLII, 32.] Judging by the description given there of the plant, it belongs to the leguminous order. The root is very bitter. *Ch.* [VIII, 5] figures, under *k'u shen*, a leguminous plant. LOUREIRO [*Flora coch.*, 556] gives *khu sem* as the Chinese name for *Robinia amara* [unknown to botanists], the root of which, he says, is "amarrissima." According to HENRY [*l.c.*, 190] at Ichang *k'u shen* is *Sophora krouei*, Hance.

Sa moku, XIV, 28, 苦參, *Sophora angustifolia*, S. & Z.

E., 161, family 苦參, with two figures, copies of *S.*, II, 21.

C., 635, *Sophora flavescens*, Ait.

Sm., 186, *Robinia*.

E., 64, family 蕞, *Henttonia*, 蕞 is one of the synonyms [*v. supra*, 144].

518.—梅 *I*, also written 梅, and sometimes read *t'o*.

Hia Calendar, 21, first month:—梅杏梅桃則華. DOUGLAS translates:—Plum, apricot, mountain peach trees then blossom. The Chinese commentary explains indeed 梅桃 by 山桃 (mountain peach) referring, it seems, to the

Rh ya [268], but 槐 in the *Rh ya* [226] is a distinct tree, likened to the white poplar.

Li k'í, I, 158:--The *i* wood used for coffins. [See the quotation in 508.]

549.--樺 *Chen*. A wood mentioned in the *Li k'í* [I, 401, and II, 5]. Izulles and combs made of this wood. The commentary says that the wood is white veined. It is also mentioned in the *Shan hai king*, together with the 榦 *tsou*. W.D. [961] takes *tsou chen* to be one name, but KUO P'ao keeps *tsou* and *chen* apart. The *Shan wen* defines *tsou* by fuel.

550.--欄 *Lau* (*luan*), a tree mentioned in the *Chou li* [II, 517]. Biot reads *lien*. Cuiser de soie. Pour apprêter les étoffes de soie, ils font bouillir dans l'eau, des cendres faites avec le bois de l'arbre *lien*. Avec cette eau clarifiée on humecte les étoffes de soie.

According to the dictionary *T'ei yüan* [Sung period], the above character is to be pronounced *luan*. Some say that it is the same as 楸 *lieu* (*Melia*), others identify it with the 欒 *luan*.

As to the *luan*, it is said to have been one of the trees planted about graves in ancient times. [See the *Chou li*, II, 22, 冢人, Superintendent of the Graves. It was his duty, amongst others, to select the trees planted about the graves and to fix their number.] The commentary [not translated by Biot] quotes the *Ch'un ts'ün wei* [1st century B.C.], where it is stated:--The tumulus for the grave of the Son of Heaven (天子) was 30 feet high. Pine trees [松 v. *supra*, 504] were planted about it. The tumulus for the feudal princes (諸侯) was half as high, the trees planted about it were the 柏 *po* (*Thuja*, v. *supra*, 505). The height of the tumulus for the high functionaries (大夫) was 8 feet, the trees planted around were the 欒 *luan* [the original text has 藥草,

medicinal herb, but the commentators observe that this is a mistake for *luan*. See also the *Shuo wen*, under *luan*]. The height of the tumulus for the other officers (士) was 4 feet, the trees planted about were the 槐 *kuai* (*Sophora*, v. *supra*, 546). The common people (庶) were not entitled to a tumulus. 楊柳 *yang lin* trees (willows, v. *supra*, 524) were planted about the graves.

P., XXXVb, 15:—榮華 *Lanu hua*. The ancient authors say that it is a tree growing in Middle China, with leaves resembling those of the *mu kin* (*Hibiscus syriacus*), yellow flowers, and fruit like that of the *swan ts'ang* (*Physalis alkekengi*, v. *supra*, 55]; the pea-like black seeds are contained in a bladder. The flowers are used for dyeing yellow, the seeds are employed in medicine and also used as beads. The tree is figured in the *Kiu hui* [LIV, 29] and in *Ch.* [XXXIII, 49]. It is the *Kalreuteria paniculata*, Laxm., which is very common in Northern China. Its fruit capsules resemble bladders. Its popular name at Peking is 木欄牙 *mu lan ya*. The leaves furnish a black dye.

K'ia wei, 120, and *Phou zu*, LXXXIV, 4, 5:—榮華 *Kalreuteria paniculata*.

E., 308, family 榮華, with figure of *Kalreuteria*.

Sapindaceae are mentioned:—

Jap., 28, *Acer palmatum*, Thbg., 槭樹.

" 36, " *trifidum*, Thbg., 三角槭.

" 68, *Esculus turbinata*, Bl., 七葉樹.

" 923, *Euphoria* (commonly *Nephelium*) *Li-chi*, Desf., 荔枝.

" 924, " *Louguia*, Lam., 龍眼.

" 930, *Euscaphis staphyleoides*, S. & Z., 野鴉椿 [v. *supra*, 518].

" 1214, *Kalreuteria paniculata*, Laxm., 榮華.

" 1990, *Sapindus Mukorosi*, Gaertn., 無患樹.

" 2141, *Staphylea bumalda*, S. & Z., 省沽油.

551.—木蘭 *Mu lan*. A tree mentioned in the *Lí sao* [5]:—*Le mou lan de la montagne Pi. Ibidem*, 12:—*La rosée suspendue aux feuilles de l'arbre lan*.

P., XXXIV, 23:—*Ma lan*. *Ch.* [XXXIII, 14] figures, under *mu lan*, a *Magnolia*.

Amoen. exot., 845:—木蘭 *Mokkuren*. *Frutex tulipifer* flore *Lilio-narcissi* rubente. This is figured in J. BANKS' *Icones Kämpferi* [5 cl., tab. 43], and is, according to MAXIMOWICZ, *Magnolia albertina*, Thbg. Not indigenous to Japan. The tree has been introduced from China.

E., 293, family 木蘭, with good figure of a *Magnolia* tree.

J. [XV, 35] mentions also the name 木蓮, which is a synonym in *E.*, but is commonly applied to *Ficus parvula*, Bl. *P.*, XVIIIb, 40.

Other *Magnoliaceæ* are mentioned:—

Jap., 1209, *Kadsura japonica*, L., 南五味子.

" 1379, *Magnolia compressa*, Max., 黃心樹.

" 1380, " *conspicua*, Salisb., 玉蘭.

" 1383, " *hypoleuca*, S. & Z., 浮爛羅勒.

" 1384, " *Kobus*, DC., 辛夷.

" 1385, " *obovata*, Thbg., 木蘭.

" 1386, " *parviflora*, S. & Z., 天女花.

" 2011, *Schizandra chinensis*, Baill., 北五味子.

" 2012, " *nigra*, Max., 內風消.

552.—桂 *Kui* is the name for the Chinese Cassia bark and the tree from which this bark is obtained, the *Cinnamomum Cassia*, Bl., a native of Southern China.

Lí k'í, I, 135:—Cinnamon (*kui*) mentioned as a strengthening spice. [See the quotation in 381.] *Ibidem* [I, 461]:—Cinnamon together with Ginger.

The *kui* is mentioned in the *Shan hai king*, in the *Shen wang pen ts'ao* and in the *Rh ya* [247].

The *Shua wen* says the *kui* is a tree of Kiangnan; it yields the best of all medicines.

Li sao, 6 :—Ils réunirent le poivrier de Chen [see 497] à l'arbre *kiuu* et au cannellier (*kouey*). 13 :—Je mêle le *kiuu* et le *kouey*. D'HERVÉY here takes *kiuu* and *kouey* as two distinct plants, but *kiuu kouey* is one name, denoting a peculiar kind of cinnamon.

P., XXXIV, 13 :—*Kui*. The ancient authors describe several sorts of cinnamon. The 牡桂 *mou kui* (male cinnamon) or 木桂 *mu kui* (tree cinnamon), said to be a thick bark from a tree with large leaves, which grows in 南海 *Nan hai* (Southern China), is that mentioned in the *Rh. ga.* Another sort [*P.*, XXXIV, 21] is called 箇桂 *kān kui*. It is the bark of a smaller tree said to grow in the mountains of 交趾 *Kiao chi* (Cochin-china). The Chinese Cassia trees are figured in *Ch.* [XXXIII, 7, 8].

At the end of the article *kān kui*, LI SHI-CHEN observes that the ancient authors comprised in this denomination another tree much cultivated in China under the names of 嚴桂 *yen kui* or 木樨 *mu si*. There are three varieties, one with white flowers 銀桂 *yin kui*, one with yellow flowers 金桂 *kin kui* and one with red flowers 丹桂 *tan kui*. The flowers appear in autumn or in spring; some varieties have flowers the whole year. The bark of the tree is thin and has not the properties of the true cinnamon. The flowers are very fragrant and employed for scenting tea. This tree is the *Olea fragrans*, Thbg., a tree much cultivated in China for its small, fragrant flowers which at Peking appear in August in great profusion in the axils of the leaves. The flowers are white or reddish brown. It is commonly called 桂花 *kui hua* or Cassia flowers. It is known by the same name at Canton. A good drawing of the plant is found in *Ch.* [XXXIII, 10] under *yen kui*.

MARTINI [in his *Atlas sinensis*, published about 230 years ago] reports that the city of 桂林府 *Kui lin fu*, the capital of Kuangsi, derives its name (city of the *kui* forests) from

the abundance of this tree in the neighbourhood. [See my *Early Europ. Res. Bot. China*, 12.] I suspect that the *kāu kui* mentioned in the *Li sao* may refer to *Olea fragrans* rather than to *Cassia* bark.

SIEBOLD, *Syn. plant. acou. jap.*, 139 :—*Cinnamomum Cassin*, *Nikkei*, 桂. E China introducta, hic ac inde colitur in usum medicum. SIEBOLD, *Icon. ined.*, VI :—*Cinnamomum pedunculatum*, Nees., 桂.

Phou zo, LXXX, 2, 牡桂, *C. pedunculatum*.

Amam. exot., 844 :—木樨, *mokksei*, arbor hortensis folio Castaneæ, flosculis albidis in croceum languentibus, tetrapetalis, pumilis, in axillis foliorum confertim nascentibus, Jasminum spirantibus, fragrantissimis; unde Sinensibus in deliciis sunt. SIEBOLD, *Syn. plant. acou. jap.*, 203 :—*Osmanthus (Olea) fragrans*, *mokseu*. Chinese name as above. *Phou zo*, LXXX, 8 :—*Olea fragrans*. Same Chinese name.

l. supra, 247, 512.

553.—穫 *Hua*, also written 樨.

Shi king, 354 :—有冽洿泉無浸穫薪. LEGGE translates this passage :—The cold waters issuing variously from the spring do not soak the fire-wood I have cut. LEGGE, who follows one of the Chinese commentators, takes 穫薪 to mean fire-wood that has been cut down. But most of the commentators say that the first character denotes a tree. CHENG HŪAN and K'UNG YING-TA refer to the *Rh ya* [235] *huo* or *lo*.

LU KI :—The *huo* is now called 椰榆 *ye yā* (coconut-elm, unknown to me). The leaves resemble those of the elm. Its bark is strong and supple. The people strip it off in pieces several feet long, and twist it into ropes. Of the wood, drinking-vessels can be made.

The dictionary *Yü pien* [6th century] says that the *huo* is the same as 樺 *hua*, which is the Birch tree.

P., XXXVb, 37, 樺木 *hua mu*. *Ch.*, XXXVII, 41.

The birch is a common tree in the more elevated mountains of Northern China. The people call it *hua*. Three or four species of *Betula* are known in China.

SIEBOLD, *Syn. plant. japon.*, 148:—*Betula japonica* (a variety of *B. alba*, L.), *sirokiba*, 樺. Cortex arboris in regionibus borealibus pro charta aliisque adhibetur utensilibus. *Phon zo*, LXXXV, 10, 11, 12:—Same Chinese name, *Betula*.

E., 254, family 樺. Figure of a large tree, the parallel veined leaves and round, berry-like fruit do not agree with *betula*.

C., 498. *H.*, 128. *Sm.*, 45. *Jap.*, 338, *B. alba*, L., var. *vulgaris*, Reg., 樺木.

V. supra, 235.

554.—樺 *Kā*. LÉGAIE calls it the staff tree. *Shi king*, 450. *Itu ya*, 249:—*Kā*, also *icei* (*k'ui*), which produces walking-sticks. The *kā* is frequently mentioned in the *Shan hai king*.

LU KI:—The *kā* or *icei* is used by old men for walking-staves. It is also called 靈壽木 *ling shou mu* (the tree of longevity). The people employ it for whip-handles and lances. It grows plentifully in the northern mountains of 宏農 *Hung nung* (in Houan).

P., XXXVI, 15:—*Ling shou mu*, or *kā*, also 扶老杖 *fu lao chang* (walking-staff for old men). The first name dates from the time of the Han dynasty. In the *Han History*, in the biography of 孔光 K'UNG KUANG, a high dignitary, it is stated that after he had been ill the empress bestowed upon him a staff of longevity to lean on when going to court. YEN SHI-KU [of the T'ang dynasty] who commented upon the *Ts'ien Han-shu*, says that this plant is like the bamboo, having joints, and is not more than 8 or 9 feet high, the stem 3 or 4 inches in circumference, fit, as it grows, for walking-sticks without any cutting or forming.

V. supra, 249.

555.—*櫻 Tzuq*. This tree is repeatedly mentioned in the *Shan hai king*. K'uo P'io describes it as a tree growing to a height of 30 feet; it is branchless. The leaves are at the end of a common stalk and form a circle [the author means to describe a fan-shaped palm-leaf]. The bark of the trunk forms joints and is useful for making ropes [the author speaks of the sheaths of the bases of the leaves, which cover the trunk]. It is also called 拼欄 *piag la*.

The *Shuo wen* likewise identifies the *tsung* with the *ping la*. The tree here spoken of is a palm, the *Chamærops Fortunei*, Lindl., which is very common in Middle and Southern China. The coir furnished by it is largely manufactured into cloaks and hats.

P., XXXVb, 39 :—*Tsung la*. The author SU SCSE [11th century] gives a characteristic description of this palm. Among other peculiarities he notes that its leaves form a circle and resemble a wheel with spokes, and that its bunches of yellowish white flowers resemble fish-roe.

Ch. Fortunei is closely allied to the Japanese *Ch. excelsa*, Thbg. Perhaps it is the same.

Amoen. exot., 898 :—*櫻欄 sjuvo et sodio*, Palmæ Malabariæ coddâ panna dictæ (*Corypha umbraculifera*) affinis, folio minori; hoc cælo sterilis et ob ornatum culta. SIEBOLD, *Syn. plant. arbor. jap.*, 50. *Chamærops excelsa*, Thbg., sive 棕欄. Provinciarum præsertim meridionalium incola. *Phon zo*, LXXXV, 15, 16.

E., 252, family 櫻, with good figure.

S., VIII, 30. *C.*, 1358.

Of *Palmæ* are mentioned :—

Jap., 206, *Arenga saccharifera*, Labill., 荖木麩.

" 408, *Calamus Draco*, Willd., 麒麟竭.

" 566, *Chamærops excelsa*, Thbg., 櫻欄.

" 646, *Cocos nucifera*, L., 椰子.

" 1312, *Livistonia chinensis*, Br., 蒲葵.

Jap., 1870, *Rhapis flabelliformis*, Ait., 櫻竹.

" 1871, *Rhapis major*, Bl., 櫻竹.

" 1963, *Sagus Rumphii*, Willd., 桃榔 (*Carpota*).

556.—楓木 *Lí mu*. The *Shan hai king* says that its fruit resembles the 楸 *liu* (*Melia*). K'uo P'ao adds that it is also called 簡揀木 *k'ien k'ien mu*. The fruit (or seed) is 指頭白 *chí t'ung p'ai* (finger's white). It is glutinous and employed for washing clothes. The dictionary *T'ai g'uan* [11th century] says that the fruit resembles a chestnut.

557.—天樞木 *T'ien p'ien mu*. *Shan hai king*. WILLIAMS [*Dictionary*, 640] is of opinion that *p'ien* is a kind of soap berry tree, *Sapindus*. But there is no reason for this supposition.

558.—栲木 *S'au mu*. *Shan hai king*, repeatedly. K'uo P'ao says it is used for making switches.

559.—白荇 *Pai kao*, name of a tree. The *Shan hai king* states that it resembles the *ku* (*Boussouctia*) and exudes a sap like varnish, but which can be eaten. It is also used for dyeing jade. According to the *Kuang yu*, another name for *pai kao* is 皐蘇 *kao su*.

560.—芡木 *Yü mu*. *Shan hai king*. A tree resembling the *ch'u* (*Ailanthus*), with leaves like those of the *t'ung* (*Pudorcia*). Leguminous fruit used for stupefying fish.

561.—蒙木 *Meng mu*. *Shan hai king*. A tree which resembles the *huai* (*Sophora*); yellow flowers. K.D. writes 檬 *meng*.

562.—櫨木 *Pi mu*. *Shan hai king*. K'uo P'ao states that a tree of this name is found in Shu (Sz'ch'uan). In the

seventh or eighth month its panicles are formed, and then it exudes a substance like salt in appearance, which is of a pleasant taste.

563.—竹 *Chu* in ancient times was a general name for Bamboos as in our days. The character is of frequent occurrence in the classical writings. It appears that in the classical period the bamboo was just as indispensable a plant to the Chinese in domestic economy and applied to the same variety of purposes as nowadays. Besides this, in early days, before paper was invented, the Chinese wrote on bamboo tablets (簡 *kien*). Bamboo-sprouts were used as food [*c. supra*, 373]. The wood of the bamboo cut into splints was woven into mats, baskets or hats.

簾 *Yen*, a bamboo mat spread on the ground, and on which they sat in early times at feasts; repeatedly mentioned in the *Shi king* [395, 473, 487]. 簟 *Tien*, a mat of fine bamboo work. *Shi king*, 305. On the rush mat (莞) below and that of fine bamboo above. *Li ki*, II, 185 ["Mourning Rites"] :—The body of a ruler was laid on a mat of fine bamboo (*tien*). 簞 *Pien*, a basket of bamboo-splints, used to contain fruits at sacrifices and feasts. Repeatedly in the *Shi king* [240, 252, 255, 395]. *Chou li*, I, 107 :—Employés aux paniers. 篋 *Fei*, round bamboo baskets [mentioned in the *Shu king*, "Tribute of Yü," 99, 117], in which manufactured fabrics, various kinds of silks, etc., from the provinces, were sent to the capital. 笠 *Li*, a hat made of splints of bamboo. *Shi king*, 308, 604.

Many of the Chinese musical instruments were made of bamboo. *Li ki*, I, 120; *Chou li*, I, 407, II, 60, 61; *Ch'un ts'iu*, 300, 301; *Shi king*, 356. Bamboo flute.

Chou li, II, 581 :—Bamboo used for bows. [*V. supra*, 501, note.]

Li ki, I, 148:—Vessels of bamboo used in connection with the burial of the dead. II, 49 ["Mourning Rites"]:—Staves of bamboo.

Shi king, 101:—With your long and tapering Bamboo rods (竹竿) you angle in the 淇 K'i. 92:—Look at those recesses in the banks of the K'i with their green bamboos (*chu*) so dense together, so strong and luxuriant. 303:—The palace has arisen firm as the roots of a clump of bamboo, with a roof like the luxuriant head of the pine tree.

P., XXXVII, 18:—*Chu* Bamboo. *Ch.*, XXXV, 67; *Kin hua*, LVI, 18.

564.—Besides the general name for the bamboo, *chu*, there appear in the Chinese Classics some other names referring to peculiar sorts of bamboo.

In the *Shu K'ing* [108, "Tribute of Yü," Province of 揚州 Yang ch'u (present Chekiang, Kiangsu, Anhui)] we read:—After the waters of the marsh of Chin (supposed to answer to the Taihu) had been settled, the bamboos, small and large, then spread about. The Chinese text has 篠 *siao* and 簕 *tang*. K'UNG AN-KUO explains *tang* by 大竹, large bamboo, and *siao* by 竹箭, bamboo good for arrows. K'UNG YING-TA says a small bamboo.

The *Rh yu* [43] identifies *tang* with 竹. LI SÜS explains:—A bamboo whose joints are 10 feet apart. *Rh ya*, 174, *siao* identified with 箭 [see farther on].

The dictionary *Tsi yü* [Sung dynasty] notices that there was in ancient 鄆 Ye a river Tang which derived its name from the *tang* bamboo. This river has still the same name. The city of Tang yin hien [Northern Honan, Chang te fu] is situated on it.

The *Chu pu*, a treatise on bamboos [3rd or 4th century], states that the *siao* bamboo is produced in 魯 Lu on the 鄆山 Tsoo mountain, and that it is used for making musical

instruments (笙管). The Tsou shan was evidently in the district of Tson hien (Shantung, Yen chou fu).

In the *Chou li* [11, 266, 267] we read :—La province de Yang tcheou produit des bambons de la grande et de la petite espèce. The Chinese text has 竹 *chu* and 箭 *tsien*. CHENG HŪAN says that these terms correspond to *tang* and *siao* in the *Yü kung*.

箭 *Tsien* properly means an arrow. This meaning is also given to it in the *Shao wen*. But in ancient times this name was also applied to a small bamboo, the stem of which was suitable for making arrows.

In the *Shun hui king*, *tsien* is generally coupled with *chu*, as in the *Chou li* [*loc.*] and in the *Lü ki*, [1, 305 “*Yü ling*”]:—Second month of winter. When the shortest day has arrived, they fell trees and carry away bamboos and [especially] the small species suitable for arrows (竹箭). *Ibidem*, 11, 53 [“*Mourning Rites*”]:—The hair-pin of the arrow-bamboo (箭笄) was worn by an unmarried daughter for her father to the end of the three years' mourning. *Ibidem*, 1, 26:—Arrows and wood for bows. [See above, 502].

The *Hsi yü* [174] identifies the *tsien* and the *siao*. The *Fang yü* states that *tsien* is the name usual in Kuan si (Shensi), whilst in 江淮 Kiang huai (Chekiang, Anhui) it is called 箬 *ts'u*.

According to the *Chu pu* (treatise on bamboos), the *tsien* does not grow higher than 10 feet. Its joints are 3 feet apart. It is very hard and strong, suitable for making arrows. It is abundantly produced in Kiangnan. The best comes from 會稽 Hui ki (Shao hing fu, Chekiang).

箬 *K'au* and 簕 *lu* are two kinds of bamboo mentioned in the *Shu king* [112, “*Tribute of Yü*”] as produced in the province of 荊州 King chon (Hupei). K'ING AN-K'AO defines *k'au* and *lu* by 美竹 (excellent bamboos); CHENG

HŪAN by large and small bamboos. The *Chu pu* says that *kān* and *lu* are two names; the *kān* and the *lu* are black bamboos, good for arrows. The first is also mentioned in the *Shu hai king*. The name *lu*, according to the *Shuo wen*, is also written 露 *lu*.

Several other ancient names for bamboos are met with in the *Shu hai king*.

筴竹 *Kui chu*, also written 桂竹 *kui chu*. The *Shu hai king* says it is very poisonous. Kuo P'o explains that this bamboo grows in the district of 桂陽 *Kui yang* (in Southern Hunan). It is 40 feet high and 1 foot in circumference.

扶竹 *Fu chu*. Kuo P'o says it is the same as the 筴竹 *k'iang*, a bamboo with high (distant) joints; the culm is solid (not hollow); it is fit for walking-sticks, whence the name 扶老竹 *fu lao chu* (bamboo for an old man to lean on).

籊 *Mei*, a bamboo repeatedly mentioned in the *Shu hai king*. Kuo P'o says:—This bamboo now grows in 漢中 *Han chung* (Southern Shensi); it is thick inside, the joints are distant. Its sprouts, which come out in winter, are eaten by the people. [Comp. *supra*, 373].

See also the bamboos mentioned in the *Rh ya* [169-174].

That is all we know regarding the bamboos mentioned in the ancient Chinese records. Most of those ancient names have most probably disappeared for a long time from the Chinese language.

565.—A. RIVIÈRE, in his admirable monograph on bamboos [*Les Bambous*; Paris, 1879] notices 23 species of the tribe *Bambusee* (genera *Bambusa*, *Arundinaria*, *Phyllostachys*) known to our botanists as coming from China, for the greater part from Canton and Hongkong. But the number of distinct species of bamboos growing in China is, no doubt, much larger. *Phyllostachys nigra*, Munro, *Ph. bambusoides*, S. & Z., *Bambusa nana*, Roxb., *B. dumetorum*, Hance, are dwarf species

found in China. *Ph. nigra* has a black stem. Perhaps this is the *k'an* or the *lu* of the *Shu king*. At Canton, this black bamboo, attaining not more than a man's height, is cut down for walking-sticks and handles of parasols. Of tall Chinese species there is the common Indian *Bambusa arundinacea*, Retz (*Arundo Bambos*, L.) and the *Bambusa tuldoidea*, Munro, both cultivated at Canton. Bamboos of great dimensions are said to grow in Chekiang [they were noticed there by MARCO POLO, 600 years ago. YULE's edition, II, 203]:—"The largest and longest canes that are in all Manzi; they are full four palms in girth and 15 paces in length." The provinces of Hupei and Sz'ch'uan are likewise famed for their large bamboos. Baron RICHTHOFEN, in one of his *Letters on the Interior Provinces of China*, remarks that nowhere in China does the bamboo attain such a size as in Sz'ch'uan.

Dr. LEGGE [*Shu king*, 109] doubts the correctness of the Chinese statements regarding solid bamboos. European botanists, however, know several bamboos with solid (not hollow) stems. [See RIVIÈRE, *l.c.*, 24; LOUREIRO, *Flora cochin.*, 72]. *Arundo* (*Bambusa*) *agrestis* (of Southern China): *internodiis brevibus, intus parum vacuis, sæpe integre solidis*. The stem of *Bambusa spinosa*, Roxbg., in India has a very small cavity.

One of the Chinese bamboos, the sprouts of which are used for food, is, according to RIVIÈRE [*l.c.*, 231] the *Phyllostachys mitis* (*Bambusa mitis*, Poir., *Arundo mitis*, Lour.). It is also known in Europe under the name of *Bambusa edulis*.

Many kinds of bamboo are also found in Japan, but as bamboos flower and fruit only once in from 30 to 60 years, the botanical names of the Japanese species have only partly been ascertained.

Amoen. exot., 898:—竹 *Tsiku*, vulgo *tacke* et *fatsku*. Arundo in genere, et per excellentiam Arundo indica *Bambus* dicta. Ejus germina, quæ ex radice pullulant sale et aceto macerata, additis allio et Capsici siliquis, inter condita illa, quæ *atsjaar* vocant, principi loco habentur. Radices circa pagum Kusatsu provinciæ Oomi, ob fundi limosi singulare ingenium mira pulchritudine luxuriant; quæ effossæ et a fibrarum verticillis liberatæ, pro bacillis servant, quos manibus gestamus, vulgo *rotang* dictos.

Ibidem, 蘆竹 (reed bamboo) *rotsikku*, vulgo *najo dacke* item *niga dacke*, i.e., Arundo indica, amara a radicum sapore dicta, frutescens. The *lu chu* or reed bamboo is mentioned in the *Sân pu* (a Chinese treatise on bamboo-sprouts, 10th century). It is said there to be produced in 蘆州 *Lü chou* (in Auhui). The sprouts are bitter, but can be eaten.

Ibidem, 扶竹 *futsiku*, vulgo *futamma tacke*, i.e., Arundo bifurca. Arundo frutescens caudice bifurca. This Chinese name appears in the *Shan hai king* [v. *supra*] and in the *Sân pu*.

Ibidem, 紫竹 (purple bamboo), *ssi tsiku*, i.e., Arundo plicata, vulgo *murisacki dacke*, i.e., Arundo purpurea; it. *mandara dacke*. Arundo frutescens, canle atro purpureo, tenuiori, farto; foliis brevibus, latius culis, pendulis, plicatis. Perhaps this is the *Bambusa purpurascens* figured in *SIEBOLD's Icon. ined.* [VIII]:—The purple bamboo is said in the *Sân pu* to be produced in Ch'eng tu fu (Sz'ch'uan). It is of a purple colour. Its sprouts are not eaten.

Ibidem, 簕 899:—簕 *dso*, vulgo *sasa*, it. *si nasa*. Arundo humilis foliis angustis. Sive:—suffrutex foliis arundinaceis. This is the small bamboo of the *Shu king*. [V. *supra*, 564.]

Ibidem, 簕 *coma sasa*. Arundo humilis foliis latioribus. Sive:—Suffrutex foliis arundinaceis latioribus striatis. *Fackona sasa*. Eadem Arundo, montis Fackoua, foliis margine et

medio nervo pulchre candicantibus. This is probably *Phyllostachys bambusoides*, S. & Z., var. *albomarginata*, Miq.

The *Phon zo* figures many bamboos under their Chinese and Japanese names.

SIEBOLD [in the *Syn. plant. æcon. jap.*, 17-33] enumerates 17 Japanese bamboos under their Japanese names, and classifies them according to the dimensions, the form and the outside appearance of the stem :—

BAMBUSA.

SECTIO A.—*TAKK*, 竹. *CULMO RAMOSO ARBORESCENTE*.

(A).—*Culmo tereti fistuloso*.

17.—*B. mataka*. 苦竹 (bitter bamboo), 江南竹 (bamboo from the Chinese province Kiangnan). Soboles suppositant baculos quæritos, ac culmi juniores victum; adulti ad ædificandum fabricandumque vulgo adhibentur.

The *Phon zo* keeps the bitter bamboo and the Kiangnan bamboo apart. LII, 5, 苦竹筍 (bitter bamboo-sprouts) and XCIV, 12, 13, 江南竹.

The bitter bamboo 苦竹 *k'u chu* is noticed in the *Chu pu* or Chinese treatise on bamboos. It is said to be commonly cultivated in China. Its sprouts are of a bitterish sweet taste. There are two sorts, a white and a purple.

18.—*B. metake*. Culmi in conficiendis muris tanquam stratum inserviunt.

This is the *Arundinaria japonica*, S. & Z. See FRANCHET & SAVATIER, *Enum. plant. Jap.*, II, 182; RIVIÈRE, 16, 297.

19.—*B. tootsik*. Culta in hortis. E China introducta.

20.—*B. narihira take*. Culta ad sæpes.

(B.)—*Culmo tereti subsolido.*

- 21.—*B. sinotake*. Usus ad muros struendum. } Utraque colitur
22.—*B. sucoo tsik*; var. *tsintsik*. } pro sepius vi-

Tsintsik is the *Bamb. glaucescens*, Sieb., or *B. floribunda*, Zoll. [See FRANCHET & SAVATIER, *l.c.*, II, 183.]

23.—*B. jatake*. 箭竹. Ob usum tritissimum pro jaculis nimirum magni aestimata.

The 箭竹 (arrow bamboo) is figured in the *Phon zo* [XCIV, 3, 4]. We have seen [*supra*, 564] that the arrow bamboo is mentioned in the Chinese Classics. [Compare also HENRY, *l.c.*, 238] *Arundo madagascarensis*, Kth.]

(C.)—*Culmo sulcato, fistuloso.*

24.—*B. moo soo*. 南竹 or 江南竹. Species culta ob soboles juniores pro cibo maxime quæsitos. Culmi adulti ad ædificandum ac fabricandum adhibentur.

Phon zo, XCIV, 12, 13:—江南竹. According to MÈNE [*Productions végétales du Japon*, 1885, p. 28, 182], the bamboos whose sprouts are eaten in Japan are the *moso*, the *madake* [v. *supra*, No. 17], the *ofetchiku*, the *hatchiku* and the *metake* [18]. Of these the *moso* and the *madake* are of large size and employed for making various domestic utensils. Perhaps the *moo soo* is the *Bambusa edulis* or *Phyllostachys mitis* [RIVIÈRE, *l.c.*, 231], which is known in China to furnish edible sprouts. Its large stem is sulcated. In Algeria, where it is cultivated, it attains a height of nearly 50 feet.

25:—*B. hatsik*. Edulis, atque pro baculis ad equitandum. Variat culmo variegato, *oosetsik*.

In the *Icones ined.*, VIII, SIEBOLD figures the *B. hatsik* with the Chinese name 淡竹 (insipid bamboo). Compare the *Phon zo*, LII, 5, 淡竹筍 (edible sprouts); also XCIV,

2, 3. In Chinese works the insipid bamboo, *tan chu*, is mentioned as produced in Chekiang.

MIQUEL gives *hatshiku* as a Japanese name for *Bambusa puberula*. FRANCHET & SAVATIER, *l.c.*, II, 184.

26.—*B. kinmeitsik*. Usus pro sepibus vivis.

This is, according to MIQUEL, the *B. pygmaea*. FRANCHET & SAVATIER, *l.c.*, II, 183.

27.—*B. kurotake*. 荻簾竹 (reed bamboo). Ob nigriscentem culmi colorem quæsitæ species.

This is perhaps the *Phyllostachys nigra*, RIVIÈRE [255] or *Bambusa nigra*, Lodd., found in China and Japan. According to FRANCHET it is a variety of MIQUEL's *B. puberula*.

28.—*Bambusa nigamatake*. Pro diversis usitata.

(D.)—*Culmo sulcato subsolido*.

29.—*B. kantsik*. Pro virgis piscatoriis usitata.

(E.)—*Culmo semitereti fistuloso*.

30.—*B. hoteitsik*. Pro baculis.

(F.)—*Culmo tetragono subsolido*.

31.—*B. sikak take*. Tantum in hortis culta.

In SIEBOLD's *Icon. ined.* [VIII] the square bamboo of Japan is figured with the Chinese name 方竹 (square bamboo). *Phon zo*, XCIV, 15, 16.

The 方竹 *fang chu* (square bamboo) is described in the *Pei hu lu* [T'ang dynasty] and in the *San pu* as a very hard, solid bamboo with a square stem 2 inches in diameter, used for various domestic purposes. It is good for walking-sticks, but the sprouts are not good for eating.

Interesting details regarding the square bamboo of Wen chow fu, communicated by Dr. MACGOWAN, are found in the

North-China Herald, 1882, p. 306. See also RIVIÈRE [315] Bambon carré.

SECTIO B.—*SASA*. CULMO SIMPLICI HERBACEO.

See above the quotation from *Amæn. exot.*, 899, where *sasa* is given as an equivalent for the Chinese classical term 簕 (small bamboo of the *Shu*).

32.—*B. kumasasa* 簕, 山白竹 (white mountain bamboo). Varietas *Fuirino kumsasa* sive *Jakiasasa*. Culta pro sepibus septisque lacnum.

Compare *supra*, *Coma sasa* in *Amæn. exot.* and in the *Phon zo*, under 簕, XVI, 8, 9. This is the *Bambusa kumasasa*, Zoll., FRANCHET & SAVATIER, *l.c.*, II, 184. But *Phyllostachys bambusoides*, S. & Z., is likewise called *kumasasa* by the Japanese. FRANCHET & SAVATIER, *l.c.*, II, 182. Under the Chinese name 簕 *jo*, *P.* [XV, 75] describes a plant of Southern China which has the appearance of a small bamboo. The young shoots resemble those of reeds. The leaves are dark green, but pale on the under side, soft and fresh at all seasons of the year. The people in the south make hats of them; they are used also for wrapping up tea, salt and balls of cooked glutinous rice. Women put them in the soles of shoes. *W.D.* [296] calls this bamboo *Bambusa latifolia*, an arbitrary identification, for *B. latifolia* is a species from tropical America. According to the *Shuo wen*, *jo* properly means the skin of the bamboo.

33.—*Bambusa ginmei sasa*. Culta pro sepibus septisque lacnum.

566. 楷 *K'iai*. *W.D.* 362:—Name of a straight, graceful and durable tree which grows on the grave of Confucius.

P. does not notice this tree, but *K.K.F.P.* [LXXX, 26] gives a short account of it. See also *K.D.* The 淮南草木譜 *Huai nan ts'ao mu pu* [*K.D.* writes 淮南子草木訓, and it would therefore seem that it is a treatise on the plants mentioned in the *Huai nan tz'*, 2nd century B.C.] states that the *k'iai* tree grows on the grave of K'UNG Tsz'. It is a sort of 柞 *ts'o* (oak). Its trunk and branches are straight, not crooked; it has a durable wood. The *Shuo wen* says that the *k'iai* is a tree on the grave of CONFUCIUS. The *Yu yang tsa tsu* [9th century] says:—In Shu (Szechuan) is a tree which resembles the *ts'o* (an oak). It withers when all the other trees are in blossom, and thrives in winter, and gives shade. The people of Shu call it *k'iai mu*. In the *Shantung t'ung chi* we read that the *k'iai mu*, which grows on the grave of K'UNG Tsz' has a finely grained wood suitable for chess-boards and lances. The young leaves may be eaten as a vegetable, they are also employed like tea. An oil is expressed from the seeds and used for plasters. Of the excrescences of the tree drinking-cups can be made.

In 1873 Dr. J. EDKINS visited the grave of CONFUCIUS near the city of 曲阜 K'ü fou hien in the prefecture of Yen chou fu, Shantung. In a paper devoted to this visit, and published in the *Journal N.C.B.R.A. Soc.* [VIII, 82] he states:—The grave of CONFUCIUS is about 20 feet high and 100 feet in circuit. On it grow pines, acacias and a tree called, from the shining brilliancy of its leaves, *shui tsing shu* (crystal tree). Dr. EDKINS transmitted to me a branch of this tree, with long, pinnate, shining leaves. They proved to belong to *Pistacia chinensis*, Bge., a handsome tree met with also in the Peking mountains.

There is yet another tree mentioned by early writers as growing on the grave of CONFUCIUS. In the *Shi ki* or Historical Records collected by SZ'-MA T'AN in the 2nd century B.C., in an account of CONFUCIUS' lineage, there is a notice stating that on the grave of the sage grows the 模檀之樹 *ch'an t'an* tree. Regarding *t'an* [v. *supra*, 540]. SZ' MA SIANG JU [† B.C. 126] in his poem *Shang lin yüan fu*, says that the *ch'an t'an*, is the same as the 木蘭 *mu lan*, which latter name is now applied to a Magnolia. [V. *supra*, 551. See also *K.D.*]

567.—模 *Mu*. The above-mentioned *Huai nan ts'ao mu pu*, which speaks of the *k'iai* tree growing on the grave of CONFUCIUS, reports that on the grave of 周公 CHOU KUNG grows the *mu*, a tree whose leaves are green in spring, red in summer, white in autumn and black in winter. [See *K.D.*]

CHOU KUNG, the famous Duke of Chon, the younger brother of WU WANG, the founder of the Chon dynasty, died in B.C. 1105, and was buried in Peih, near the present Si an fn (Shensi). [See LEGGE's *Shu king*, 535.]

568.—We read in the *Li sao* [34]:—Les guides de mon attelage ont été attachées aux branches du *fou sang* (扶桑). J'ai pris un rameau de l'arbre *jo* (若木) pour l'opposer au soleil.

Fu sang was the name of a fabulous tree behind which the sun was supposed to rise. It is also mentioned in TUNG FANG-so's *Shi chou ki* [2nd century B.C.] and other ancient works. The *Shan hai king* writes 扶木 *fu mu*. KUO P'ao explains it by 扶桑. [See also my article "Das Land *Fu sang*," in *Mittheil. d. Deutschen Gesellsch. f. Natur-u. Völkerkunde Ostasiens*; Yokohama, Heft 11, 1876.]

In Chinese botanical works the name *fu sang* is applied to *Hibiscus Rosa sinensis*, L., a beautiful ornamental shrub

cultivated in Southern China. *P.*, XXXVI, 45. *Ch.*, XXXV, 58. It is the same in Japan. *Phon zo*, XC, 10-14, 扶桑, *Hibiscus Rosa sinensis*. But this plant has nothing to do with the *fu sang* of the *Li sao* and the *Shi chou ki*.

569.—The 若 *jo* tree mentioned in the *Li sao* together with the *fu sang*—the name is also written 稽—is likewise a fabulous tree. This name appears also in the *Huai nan tsz'*, the *Shan hai king* and other ancient works. In the *Shan hai king* it is stated to grow out from another tree, the 橫木 *yao mu*.

570.—迷穀 *Mi ku*, a fabulous tree of the *Shan hai king*, which resembles the *ku* (*Broussonetia*). Its wood is black, its flowers emit four rays of light (其花四照). Who wears about himself [a branch of this tree] keeps the right road [佩之不迷].

571.—*Li sao*, 39:—Je cueillais une branche de l'arbre *kiong* (瓊枝) pour enrichir ma ceinture. The same, p. 59.

K'iong is properly a fine kind of jadestone. [See the *Shi king*, 152]. But the name was also applied to a fabulous tree. [See the legend of the *k'iong* tree in MAYERS' *Chinese Reader's Manual*, 317.]

GENERAL REMARKS BY D^r. E. FABER.

NEW JAPANESE BOTANICAL WORKS.

As Dr. BRETSCHNEIDER refers only to older Japanese identifications, the student will receive great advantage from comparing the latest, and probably best, Japanese identifications by J. MATSUMURA, supervised by R. YATABE, Tokyo, 1884. As there was not room enough in the notes, all the rest of the Chinese and corresponding scientific names, according to MATSUMURA, will be found in the Appendix. I had some difficulty and several months delay in procuring MATSUMURA's work in Shanghai, hence reference to it could only be made from p. 35 of this publication. During a short visit to Tokyo I found some other useful Japanese works bearing on this subject:—

A Catalogue of Plants in the Herbarium of the College of Science, Imperial University; Tokyo, 1886.

The arrangement follows the natural orders without any alphabetical convenience. The Chinese names agree, with a few exceptions, with MATSUMURA'S. There are, however, a few more Chinese names. Plants not indigenous are distinguished by smaller type.

Tabula Ordinum Plantarum Naturalium, by MANABY MIYOSHI; Tokyo, 1888.

This is a useful sheet of the names of all the natural orders in Latin, Chinese and Japanese. The Phanerogams are classified according to BENTHAM and HOOKER, the Cryptogams according to GEBEL'S *Grundzüge der Systematik*.

A Glossary of the Botanical Terms; Tokyo, 1891.

A Text-Book of Botany, 2 Vols.

生薬學. 2 Vols. A Pharmacopœia. Many scientific terms are given both in Latin and Chinese.

藥用植物學. Elementary Botany. A kind of Introduction to the former work.

日本樹木誌略. 100 fine lithographs of trees and their wood, showing the fibre. Names are given in Japanese, Chinese and Latin. Description, etc., is in Japanese.

草木花實寫真畫譜. 4 Vols. Colored drawings of plants. Japanese and Chinese names. The scientific names are defective. Short descriptions in Japanese.

AUTHORITIES FOR CHINESE IDENTIFICATIONS.

We regret that the Japanese authors do not state the authorities for their Chinese identifications. If we knew only of MATSUMURA's excellent vocabulary the impression would be unavoidable that all Japanese and Chinese writers are in perfect agreement on every point. The quotations given by Dr. BRETSCHNEIDER compared with the Notes by Dr. FABER reveal the real state of things. Some Chinese names of plants not indigenous to Japan have been applied to other species and even to other genera in Japan. A large number of Chinese names are not confined to one species only, in China, but are applied to different plants in different localities and by different authors. One and the same plant also bears several names in books as well as among the people. This is even the rule, with very few exceptions. We cannot avoid confusion, if this fact is ignored.

The best method will be to take the Chinese geographical works as the basis for determining the best Chinese names. There is one voluminous geographical-statistical record for each province, and most of the prefectures have a more detailed work of their own, called **府志**, commonly also in many volumes. The chapter on "produce," **物產**, contains the names of all plants known within the prefecture, and the information given under each name is the most reliable that can be gleaned from Chinese sources. Wherever procurable, a comparison with separate works on districts, **縣志**, will be of advantage.

CHINESE DRAWINGS OF PLANTS.

Two or more drawings of distinct plants are sometimes given under one name. Very few of the figures in the Imperial Encyclopedia are drawings from nature, but most are copies of earlier copies, which were copies of other copies. It is not surprising, therefore, that many figures appear more or less disfigured. The authors were commonly more familiar with books than with nature, and the block-cutters had no understanding of either. In comparing a common later edition of the *Pen tsao* with the photo-lithographed

reprint of one dated 1657, the student will be struck with the contrast. It shows the importance of tracing the original editions of plates. This is no easy task in China. Editions of the Ming period are already rare and expensive; those of the Sung and T'ang periods are, as a rule, beyond the reach of ordinary mortals. The expression "a good figure" must not mislead the reader. None of the Chinese drawings exhibit botanical details. The best figures are mere outlines, but are recognisable when the plant is known. The greater number of inferior figures might belong to a dozen and more distinct plants.

CHINESE NAMES.

The Chinese have never shown any inclination for exploring nature from a love of knowledge. No trace can be found of a scientific tendency in all they have written on plants. They have named many plants, only because they could not do otherwise. Named among the ten thousand Chinese plants are such only as are in use among the people and which were in use long before a name was thought of.

The peculiar names of the *Rh ya* given in explanation of more ancient names point probably to different languages. A comparison with the philological statements of the *Fang yen* [vide this Journal Vol. XVI, p. 145, No. 106] might lead to a determination of their respective localities. The difficulty, however, of fixing the ancient pronunciation of the respective written characters must not be overlooked. We are dependent on modern analogies. The explanation of ancient names, already obsolete 2,000 years ago, is mere guess-work without value. Most of Kuo Po's remarks belong to this kind.

Though it is of scientific interest to find out the botanical determination of ancient names, it is not less of scientific interest, and of considerable practical value, to determine every kind of material from the vegetable kingdom used in China at present and to verify the names employed in authoritative modern Chinese works, especially in the *Pen ts'ao*.

ANCIENT NAMES.

The following almost complete list of Chinese names of plants which have remained unchanged from ancient classical times will be of interest to the student.

ANCIENT NAMES STILL IN USE.

[The Nos. refer to Dr. Bretschneider's Nos. in this volume.]

- 7.—尤 *shu*, *Atractylis*.
 13, 431.—蒿 *hao*, *Artemisia annua*.
 15, 436.—蓬 *p'eng*, *Erigeron*.
 42.—筍 *sūn*, *Bamboo-sprout*.
 45.—萆 *ni*, *Adenophora*.
 64.—葍 *su*, *Perilla*.
 77, 429.—艾 *ai*, *Artemisia vulg.*
 99, 395.—荷 *ho*, *Nelumbium*.
 113.—萍 *p'ing*, Water-plant (*Monochoria?*) [V. 400.]
 114, 400.—蘋 *p'in*, *Marsilea*.
 116, 370.—芹 *k'in*, *Oenanthe*.
 124, 397.—蕒 *ling*, *Trapa*.
 162.—菌 *kūn*, Mushroom.
 185, 377.—蕨 *kūe*, *Pteris aquilina*.
 210, 455.—葦 *wei*, *Phragmites*.
 227, 473.—梅 *mei*, *Prunus Mume*.
 236, 487.—柚 *yu*, *Citrus decumana*.
 252, 523.—楊 *yang*, *Populus*.
 257, 526.—杞 *k'i*, *Lycium*.
 261.—櫻 *feng*, *Liquidambar*.
 272, 484.—棗 *tsao*, Jujube.
 289, 546.—槐 *huai*, *Sophora*.
 301, 481.—梨 *li*, *Pyrus*.
 304, 528.—榆 *yū*, *Ulmus*.
 328, 499.—桑 *sang*, *Morus*.
 328, 524.—柳 *liu*, *Salix*.
 337.—稻 *tao*, *Oryza*, Rice.
 339.—麥 *mai*, *Triticum*, *Hordeum*.
 341.—黍 *shu*, *Panicum miliaceum*.
 355.—菽 *shu*, *Leguminosæ*.

- 357.—葱 *ts'ung*, *Allium fistulosum*.
 362.—芥 *liai*, *Brassica sinapis*.
 368.—葵 *k'ui*, *Mulva*, etc.
 371.—堇 *kin*, *Viola*.
 375.—蒲 *p'u*, *Typha*.
 376.—菖 *ch'ang*, *Acorus*.
 378.—薇 *wei*, *Osmunda*.
 380.—芝 *chi*, *Fungus*.
 381.—薑 *kiang*, Ginger (*Alpinia*).
 382.—瓜 *kua*, (Melon) *Cucurbitaceæ*.
 384.—瓠 *hu*, 瓠 *p'ao*, *Lagenaria*.
 388.—麻 *ma*, Hemp, *Cannabis*, etc.
 390.—葛 *ko*, *Pueraria Thunbergiana*.
 391.—紵 *chu*, *Bahmeria*.
 392.—藍 *lan*, *Polygonum tinctorium*.
 396.—苳 *k'ien*, *Euryale*.
 399.—苳 *hing*, *Limnanthemum*.
 401.—藻 *tsao*, *Ceratophyllum*, etc.
 403.—芍藥 *sho yo*, *Pæonia albiflora*.
 404.—鞠 = 菊 *kü*, *Chrysanthemum*.
 410.—芷 *chi*, *Angelica*.
 413.—藟本 *kao pen*, *Nothosmyrnum jap.*
 422.—半夏 *pan hia*, *Pinellia*.
 428.—蓴 *shi*?
 446.—藜 *li*, *Chenopodium*.
 447.—苓 *k'in*, *Scutellaria*.
 453.—藎 *lien*, *Vitis*.
 455.—蘆 *lu*, *Phragmites*.
 459.—茅 *mao*, *Imperata*.
 470.—桃 *t'ao*, Peach.
 471.—杏 *hing*, Apricot.
 472.—李 *li*, *Prunus domestica*.
 478.—木瓜 *mu kua*, *Cydonia*.
 485.—棘 *ki*, *Zizyphus* (wild).

- 486.—橘 *kū*, Orange.
 488.—枳 *chi*, *Citrus fusca*?
 489.—楨 *kū*, *Hovenia*.
 491.—柿 *shi*, *Diospyros*.
 494.—栗 *li*, *Castanea*.
 496.—榛 *chen*, *Corylus*.
 497.—椒 *tsiao*, *Zanthoxylon*.
 501.—柘 *che*, *Cudrania*.
 503.—殼 *ku*, *Broussonetia*.
 504.—松 *sung*, *Pinus*, etc.
 505.—柏 *po*, *Thuja*.
 512.—栲 or 楠 *nan*, *Machilus*.
 513.—章 or 樟 *chang*, Camphor.
 515.—桐 *tung*, *Paulownia*.
 516.—梧 *wu*, *Sterculia platanifolia*.
 517.—漆 *ts'i*, *Rhus vernicifera*.
 518.—樗 *ch'u*, *Ailanthus*.
 521.—荆 *king*, *Vitex*.
 527.—檉 *ch'eng*, *Tamarix*.
 531.—櫟 *p'o*, *Celtis*.
 534.—櫟 柞 *li, tso*, *Quercus*.
 550.—欄 *lan*, *Magnolia*.
 552.—桂 *kui*, *Cinnamomum*.
 555.—檉 *tsung*, *Chamaerops*.
 563.—竹 *chu*, Bamboo.

Conspicuous in this list is the large number of trees, fruit-trees as well as timber-trees, and the absence of powerful medicines. Does this fact indicate that it was not the Chinese who found out the important use of poisonous plants in medicine, but that they were taught such use by foreigners, and afterwards discovered plants, indigenous to China, possessing similar qualities?

DISCREPANCIES EXPLAINED.

The discrepancies between the figures and descriptions of Chinese publications, ancient and modern, as also of books in general and

present mercantile usage, can be explained in a simple way. Though some knowledge of drugs and their use has been universal in China, a good number of the corresponding medicinal plants were never known to any but a few collectors of plants. They kept their knowledge as a secret by which they gained their profits. As it might happen that the few expert collectors vanished in times of war or through other calamities, their secret perished with them. Other persons tried afterwards, with more or less success, to repair the loss. If the effects of their drugs were found similar to those lost, the differences (appearance and former description) would be overlooked. It might also happen that the supply became exhausted, through extermination of the plant, at one particular locality or in general. The nearest substitute had then to take its place. Moreover, attempts were often made to introduce a cheaper drug from the neighbourhood for an expensive one from a distance, and in many cases with success. It would happen, too, that a drug found to be of a similar but better effect would displace another long known, and probably receive the recognized old name. Dishonesty on the part of those concerned in the trade had, of course, a considerable share in the causes of the present confusion. Inadequate botanical knowledge made exposure almost impossible. New names were also started, partly by misprints and insufficient knowledge of the written characters among practitioners, partly by the differences of pronunciation in different parts of China.

CHINESE CLASSIFICATION.

Though the Chinese have written many volumes on plants, during a time of more than two thousand years, and have accumulated between three and four thousand names of plants (including synonyms), they have never made an attempt toward a scientific treatment of botany. Their descriptions are vague and often contradictory, commonly useless except the plant be already known. All attempts at classification are on the basis of usage, not founded on botanical properties.

The various names given in the Imperial Encyclopedia at the head of each family, sometimes in great number, and called *synonyms* in my notes for brevity's sake, are in many cases names given to distinct plants by other Chinese authors, sometimes even to plants of different orders, but commonly to other species of the same genus, to other genera of the same order, or to plants of the same usage.

GEOGRAPHICAL DISTRIBUTION.

China has not yet been satisfactorily explored by botanists. Well known are only the regions around Peking, Chefoo, Canton, Shanghai, Ningpo, Kiukiang, I-chang, Omei Mountain, Newchwang, Moukden, and Long White Mountain. Though plants have been collected from other parts of China, this has been done only episodically, not as an exploration of the whole field. We may boldly say that hundreds of undescribed plants can still be found in China. As long as exploration is not nearer completion, we cannot expect an accurate knowledge of the geographical distribution of plants in China. We do not even know the limits of the spontaneous growth of bamboo, nor of the cultivation of rice, of the mulberry tree to rear silkworms, of the peach, citrus, etc. The table in *Plantæ Davidiana*, Vol. II, wherein Moupin, Kiangsi, Shensi, S. Mongolia and Peking are put in parallel columns, the *Index Floræ Sinensis*, which is more comprehensive, but only about one-half published, and a *List of Chinese Medicines*, published by order of the Inspector General of Customs, where the place of production is (approximately) stated, are valuable contributions in this line. Much valuable information might be gleaned from the Chinese geographical works already referred to.

Some Chinese authors venture farther and mention the place where the plant originally came from. We may take this in the sense of the first discovery of the plant or that its use spread from the place mentioned. See, for example, *San ts'ai t'u hui* (quoted = S.). The botanical portion of this encyclopedia is by 王思義, the second son of WANG K'K 王圻 [v WYLIE, 56, 149].

A DESIDERATUM.

Indispensable to every botanist in China is the *Index Floræ Sinensis*, a work of great merit, published by F. B. FORBES and W. B. HEMSLEY at Kew. It appears in portions and is progressing very slowly. We may, however, soon expect Vol. II finished. This brings us to the end of *Dicotyledons*. Vol. III will have to deal with *Monocotyledons* and *Cryptogams*. Another volume is required to supplement the first two. This work is not restricted to a mere dry enumeration of the scientific names of all the Chinese plants known. Reference is made to every description and illustration of a plant in botanical works. The geographical distribution is mentioned, as regards China, for Chili,

Manchuria, Shantung, Kiangsu, Chekiang, Fokien, Formosa, Pescadores, Kuangtung, Hongkong, Hainan, Yunnan, Szechuan, Kansuh, Hupeh, Kiangsi; and as regards other countries, for Corea, Japan, Luchu Islands, Siberia, India, etc. This is most valuable information. One of the greatest merits of the Index, however, is the reduction of a large number of synonymic, or else useless, determinations. For example, *Rhododendron indicum*, Sw., is now relieved of 25 botanical names. Descriptions are confined to new species and to a few new genera. As no key is given to the Chinese genera of each order and to the species mentioned in the Index, and no complete botanical library is available in China, this work cannot assist to determine any plant unknown to us, though it may be mentioned in the book. The aim of the Index is another. We need along with it a short *Handbook of Chinese Botany*, or BENTHAM'S *Flora Hongkongensis* enlarged to *A Flora Sinensis*. Introductory matter could be reduced and description be made as short and characteristic as possible.

Classification will remain partly unsatisfactory till all plants of the globe are known and time can be given to closer observation and more minute investigation of every species in a genus and of every genus in an order. Soil, elevation, moisture, light and air in their innumerable differences and varying combinations are so many conditions which modify the typical form of a plant. Cultivation has shown the great extent of variation in some species. Observation of wild species is limited. Many differences, now regarded as sufficient to establish a distinct species, may mark only variations. Genera, too, with only one or two species attached to their fame and fate, will be recognized by a critical specialist as extreme forms of some older genera. Very few of the Chinese species are in every respect identical with specimens of the same species in Europe or America. The present difficulties of determining plants in China would be considerably removed if the above-mentioned Desideratum could be realised.

APPENDIX.

Chinese Names of Plants, identified in Japan, classified under their Natural Orders and arranged alphabetically.

ACANTHACEÆ.—水蓑衣科.

- Jap.*, 796, *Dicliptera Buergeriana*, Miq., 九頭師子草.
 „ 1116, *Hygrophila lancea*, Miq., 水蓑衣.
 Justicia procumbens, L., 爵床.
 „ 1925, *Rostellularia procumbens*, Nees, 腳魚鱗.
 „ 2158, *Strobilanthes oliganthus*, Miq., 紫雲菜.

ALISMACEÆ.—澤瀉科 [*Alisma*, v. 437].

- Jap.*, 1962, *Sagittaria sagittifolia*, L. 慈姑.

AMARANTACEÆ.—莧科.

- Jap.*, 40, *Achyranthes bidentata*, Bl., var. *japonica*, Miq., 牛膝.
 „ 125, *Amarantus caudatus*, L., 老鎗穀.
 „ 126, „ *mangostanus*, L., 莧.
 „ 127, „ *melancholicus*, L., var. *tricolor*, Lam., 雁
 來紅. *V. Apocyn.*
 „ *spinosus*, L., 假莧菜.
 „ *viridis*, L., 野莧.
 „ 544, *Celosia argentea*, L., 青葙.
 „ 545, „ „ var. *cristata*, Bth., 雞冠.
 „ 933, *Euxolus viridis*, Moq., 野莧.
 „ 1038, *Gomphrena globosa*, L., 千日紅.

AMARYLLIDÆ.—石蒜科.

- Jap.*, 130, *Amaryllis Belladonna*, L., 鹿葱.
 „ 701, *Crinum asiaticum*, L., var. *declinatum*, Kth., 文珠蘭.
 „ 1125, *Hypoxis minor*, Don., 仙茅.
 „ 1358, *Lycoris radiata*, Herb., 鵝色箭.

Jap., 1483, *Narcissus jonquilla*, L., 長壽花.

„ 1484, „ *Tazetta*, L., var. *chinensis*, Roem., 水仙.

„ 1496, *Nerine japonica*, Miq., 石蒜 (*Lycoris radiata*, H.).

Polianthes tuberosa, L., 月下香.

AMPELIDEÆ.—葡萄科. [V. 453.] *Vitis inconstans*, 常春藤.

V. labrusca, L., 野葡萄.

ANACARDIACEÆ.—漆樹科. [V. 517.] *Rhus Osbeckii*, 野欖子.

ANONACEÆ.—番荔枝科.

Jap., 176, *Anona Squamosa*, L., 番荔枝.

APOCYNACEÆ.—夾竹桃科.

Jap., 139, *Ansonia elliptica*, Roem. & Schult., 水甘草.

„ 1497, *Nerium odorum*, Soland., 夾竹桃.

„ 2215, *Trachelospermum jasminoides*, Bth. & Hkr., 絡石
(白花藤). (In 皇青經解 book 552 pp.
26-28 are good figures and a long discussion about
its name 芫蘭, v. *supra*, 93, 468).

„ 2325, *Vinca rosea*, L., 鳳來紅 (長春花). *V. Amar.*

ARALIACEÆ.—五加科. [V. 511.]

Hedera Helix, L., 百腳蜈蚣 differs.

ARISTOLOCHIACEÆ.—馬兜鈴科.

Jap., 213, *Aristolochia debilis*, S. & Z., 馬兜鈴 (*A. Kempferi*,
Willd.; *A. debilis*, S. & Z., 土青木香).

„ 235, *ff. Asarum* [v. 156, 414].

AROIDÆ.—天南星科, *Acorus* [v. 376].

Jap., 116, *Alocasia macrorrhiza*, Schott, 海芋.

Amorphophallus, Bl., 蒟蒻.

„ 209-212, *Arisaema* [v. 422].

„ 652, *Colocasia antiquorum*, Schott, 芋.

„ 657, *Conophallus Konjak*, Schott, 蒟蒻.

„ 1260, *Leucocasia gigantea*, Schott, 白芋.

„ 1360, *Lysichiton camtschatense*, Schott, 觀音蓮.
Pinellia [v. 422].

„ 1912, *Richardia africana*, Kth., 野芋.

„ 2164, *Symplocarpus fatidus*, Salisb., 地湧金蓮.

ASCLEPIADACEÆ.—白前科. [Vide 468 and 378.] (*Endotropis* = *Cynanchum*.)

Asclepias curassavica, L., 馬利筋.

Jap., 2327, *Vincetoxicum amplexicaule*, S. & Z., 合掌消.

BEGONIACEÆ.—秋海棠科.

Jap., 326, *Begonia Evansiana*, Andr., 秋海棠.

BERBERIDEÆ.—目木科.

Jap., 91, *Akebia quinata*, Decne, 通草 (*Lardizabalea*).

" 331, *Berberis japonica*, R. Br., 十大功勞.

" 332, " *Thunbergii*, DC., var. *typica*, Reg., 小藥.

" 334, " *vulgaris*, L., 大黃連 [v. 447].

" 813, *Diphyllia Grayi*, Fr. Schm., 山荷葉.

" 871, *Epimedium macranthum*, Morr et Den, 淫羊藿.

" 1481, *Nandina domestica*, Thbg., 南燭, 南天竹.

" 2144, *Stauntonia hexaphylla*, Dcne, 野木瓜 (*Lardizabalea*).

BIGNONIACEÆ.—紫葳科. [Vide 164, 292.]

BIXINEÆ.—椅科.

Jap., 1055, *Gynocardia odorata*, R. Br., 大風子.

" 1126, *Idesia polycarpa*, Max., 椅.

" 2389, *Xylosma racemosa*, Miq., 柞木 [v. 534].

BORAGINEÆ.—紫草科 [v. 142].

Jap., 838, *Ehretia serrata*, Roxb., 松楊.

" 896, *Eritrichium pedunculare*, DC., 附地菜.

BROMELIACEÆ.—鳳梨科.

Jap., 379, *Bromelia Ananas*, L., 鳳梨.

BURSERACEÆ.—橄欖科.

Jap., 439, *Canarium commune*, L., 橄欖.

CALYCANTHACEÆ.—蠟梅.

Jap., 578, *Chimonanthus fragrans*, Ldl., 蠟梅.

" 579, " " *forma latifolia*, 檀香梅.

CAMPANULACEÆ.—桔梗科.

Adenophora verticillata, Fr. & S., 沙參.

" *polymorpha*, Ldl., var. *alternifolia*, Fr. & S., 杏葉

沙參.

Adenophora tracheloides, Max., 薺苳 [p. 45].

Campanumra japonica, Max., 金銀豹.

Jap., 436, *Campanula punctata*, Lam., 山小葉.

Codonopsis lanceolata, Bth. & H., 土黨參.

„ 1025, *Glossocomia lanceolata*, Reg, 羊乳.

„ 1176, *Isolobus radicans*, DC, 半邊蓮.

Lobelia radicans, Thbg., 半邊蓮.

„ 1313, *Lobelia sessilifolia*, Lamb., 山梗菜.

Platycodon grandiflorum, ADC., var. *glancum*, S. & Z.,

桔梗 [p. 45].

„ 2377, *Wahlenbergia marginata*, DC., 細葉沙參.

CAPPARIDE.E.—白花菜科.

Jap., 1054, *Gynandropsis viscida*, Bge., 白花菜 [p. 468].

CAPRIFOLIACE.E.—忍冬科.

Jap., 800, *Dicervilla grandiflora*, S. & Z., 錦帶花 (*D. japonica*, DC.).

„ 803, „ *versicolor*, S. & Z., 楊梅 (*D. grandiflora*, S. & Z.).

„ 1319, *Lonicera gracilipes*, Miq, 驢駝布袋.

„ 1320, „ *japonica*, Thbg., 忍冬.

„ 1985, *Sambucus racemosa*, L., var. *Sieboldiana*, Miq., 接骨木.

„ 1986, „ *Thunbergiana*, Bl., 蒴藋.

„ 2239, *Triosteum sinuatum*, Max., 獨用將軍.

„ 2304, *Viburnum dilatatum*, Thbg., 莢蒾.

„ 2307, „ *japonicum*, Spr., 堅莢樹.

„ 2309, „ *Opulus*, L., 山榮樹 (雪稜).

„ 2312, „ *Sieboldi*, Miq., 土榮樹.

„ *tomentosum*, Thbg., 繡蝶戲珠花.

CARIOPHYLL.E.—石竹科.

Jap., 554, *Cerastium vulgatum*, L., var. *glandulosum*, Koch.,

卷耳.

„ 708, *Cucubalus bacciferus*, L., var. *japonicus*, Miq., 狗筋蔓.

„ 787, *Dianthus chinensis*, L., 石竹.

„ 790, *Dianthus superbus*, L., 瞿麥.

- Jap.*, 1341, *Lychnis grandiflora*, Jacq., 前夏羅 (翦春羅).
 „ 1341, „ „ „ *forma calicibus pilosis*, 前
 春羅.
 „ 1343, „ *Senno*, S. & Z., 前秋羅.
Melandryum firmum, Roxb, 女婁菜.
 „ 1960, *Sagina maxima*, A. Gray, 漆姑草, 瓜槌草.
 „ 1993, *Saponaria Vaccaria*, L., 王不留行.
 „ 2151, *Stellaria uliginosa*, L., 雀舌草. *St. aquatica*, Scop.,
 繁縷.

CELASTRINEÆ.—衛矛科.

- Jap.*, 905, *Euonymus alatus*, Thbg., 衛矛.
 „ 907, „ *europæus*, L., var. *Hamiltonianus*, Max.,
 桃葉衛矛.
 „ 909, „ *japonicus*, Thbg., var. *radicans*, Miq., 扶
 芳藤.
 „ 2243, *Tripterygium Wilfordii*, Hk. f, 昆明山海棠.

CERATOPHYLLÆ.—聚蘖科 [v. 401].

- CHENOPODIACEÆ.—藜科 [v. 446, *Kochia*, v. 9]. *Suaeda maritima*,
 Dumort, var. *asparagoides*, Fr. & S., 鹹蓬.

CHLORANTHACEÆ.—金粟蘭科.

- Jap.*, 583, *Chloranthus brachystachys*, Bl, 草珊瑚.
 „ 584, „ *inconspicuus*, Sw, 金粟蘭.
 „ 585, „ *japonicus*, Sieb., 水晶花, 銀線草.
Clad. serratus, R. & Sch., 及已.

COMBRETACEÆ.—使君子科.

- Jap.*, 1851, *Quisqualis indica*, L., 使君子.

COMMELYNEÆ.—鴨跖草科.

- Jap.*, 152, *Ancilema oliganthum*, Fr. & S., 水竹葉.
 „ 654, *Commelyna communis*, L., 鴨跖草.
 „ 1677, *Pollia japonica*, Hornst., 杜若.

COMPOSITÆ.—菊科.

- Jap.*, 39, *Achillea* [v. 428].
 „ 55, *Adenocaulon adhaerens*, Max., 和尚菜.

- Jap.*, 177, *Anthemis nobilis*, L., 加蜜列.
Arctium Lappa, L., 牛蒡.
 „ 217, *ff. Artemisia* [v. 429].
 „ 283, *Aster fastigiatus*, Fisch et Mey., 女蕒.
 „ 285, „ *hispidus*, Thbg., var. *mesochatus*, Fr. & S., 鐵
 桿蒿.
 „ 290, „ *scaber*, Thbg., 東風菜.
 „ 292, „ *tataricus*, L., 紫蕒.
 „ 294, „ *trinervius*, Roxb. [v. 405].
 „ 295, „ „ *Roxb.*, var. *ovata*, Fr. & S., 野粉
 團兒.
 „ 297, „ *Tripolium*, L., 金盞菜.
 „ 304, *Atractylis lancea*, Thbg., 漢種蒼朮.
 „ 305, „ *ovata*, Thbg., 蒼朮.
 „ 346, *Bidens pilosa*, L., 鬼臧草.
 „ 347, *Bidens tripartita*, L., 狼把草 [v. 155].
 „ 362, *Boltonia (Aster) cantoniensis*, DC., (Bl.), 雞兒腸.
 „ 364, „ „ *incisa*, Bth. (Fisch), 六月菊.
 „ 414, *Calendula officinalis*, L., 金盞草.
 „ 419, *Callistephus chinensis*, Nees., 翠菊.
 „ 461, *Carduus crispus*, L., 飛廉.
 „ 516, *Carpesium* [v. 35]. (*C. divaricatum*, S. & Z., 狗
 兒菜.
 „ 526, *Carthamus tinctorius*, L., 紅藍花.
Centipeda orbicularis, Lour., 石胡荽.
 „ 587, *Chrysanthemum coronarium*, L., 茼蒿.
 „ 635, *Cnicus jap.*, *C. oval* [v. 62].
 „ 641, „ *pectinellus*, Max., 雞頂草.
 „ 644, „ *spicatus*, Max., 大薊.
 „ 699, „ *Crepis japonica*, Bth., 黃鵪菜.
Dichrocephala latifolia, DC., 茯苔菜.
 „ 834, *Echinops sphærocephalus*, L., 單州漏蘆.
 „ 835, *Eclipta alba*, Hassk., 鱧腸.
 „ 886, *Erigeron* [v. 436].

Jap., 913, *Eupatorium* [v. 405].

" 1011, *Gerbera anandria*, Schultz, 大丁草.

" 1035, *Gnaphalium multiceps*, Wall., 鼠麴草.

" 1037, " *yedoense*, Fr. & S., 萩 [v. 435] (*Anaphalis yed.*).

" 1057, *Gynura pinnatifida*, DC., 三七 (土三七).

" 1070, *Helianthus annuus*, L., 向日葵.

" 1150, *Inula britannica*, DC., var. *vulgaris*, Lad., 旋覆花.

" 1151, " *Halenium*, L., 土木香.

" 1181, *Ixeris debilis*, Gray., 剪刀股.

" 1185, " *Thunbergii*, Gray., 黃瓜菜.

" 1219, *f. Latuca* [v. 24].

" *Sororia*, Miq., 山苦蕒.

" *debilis*, Bth., 剪刀股.

Lampsana apogonoides, Max., 稻槎菜.

" 1231, *Lappa major*, Gaertn., 牛蒡 = *Arcium*.

" 1377, *Macrocladidium verticillatum*, Fr. et Sav., 鬼督郵.

" 1469, *Myriogyne minuta*, Less., 石薺菜.

" 1593, *Petasites* [v. 160].

" 1630, *Picris japonica*, Thbg., 毛連菜.

" 1808, *Pyrethrum Decaisneanum*, Max., 千年艾.

" 1809, " *indicum*, Cass., 野菊.

" 1997, *Saussurea Bungei*, Bth., 泥胡菜 (野苦麻).

Scorzonera hispanica, L., 鵝蔥.

" 2056, *Senecio campestris*, DC., 狗舌草.

" 2060, " *japon.* [v. 56].

" 2061, " *Kämpferi*, DC., 橐吾 (also 款冬花).

" 2062, " *Krameri*, Fr. et S., 兔兒傘.

" 2065, " *palmatus*, Pall., 劉寄奴草.

" 2078, *Siegesbeckia* [v. 35].

" 2106, *Solidago Virgaurea*, L., 一枝黃花.

" 2108, *Sonchus* [v. 24]. (*S. oleraceus*, L. 續斷).

" 2171, *Tagetes erecta*, L., 萬壽菊.

" 2172, " *patula*, L., 藤菊.

Jap., 2177, *Taraxacum officinale*, Wigg., var. *corniculatum*, Koch

& Ziz., 蒲公英.

" 2388, *Xanthium*. [V. 184, 438.]

CONIFERÆ.—松柏科 [v. 504-507].

Thuja obtusa, S. & Z., 扁柏.

" *pisifera*, Bth. et Hk., 花柏.

Cryptomeria, *Cunninghamia* and *Torreya* [v. 228, *Pinus*. I. 504.]

CONVOLVULACEÆ.—旋花科.

Convolvulus [v. 442].

Cuscuta japonica, Choisy., v. 131, etc.

Jap., 1153, *Ipomoea Batatas*, Lam., 甘藷.

" 1154, " *bona-box*, L., 天茄兒.

" 1156, " *hederacea* [v. 379].

" 1158, " *Quamoclit*. 蔦蘿.

" *triloba* (*Pharbitis*), Miq., 牽牛子.

CORIARIÆ.—木本鈎吻科.

Jap., 676, *Coriaria japonica*, A. Gray, 木本黃精葉鈎吻.

CORNACEÆ.—山茱萸科.

Jap., 309, *Aucuba japonica*, Thbg., 桃葉珊瑚.

" 678, *Cornus kousa*, Buerger., 羊婆奶.

C. officinalis, S. & Z., 山茱萸.

" 1397, *Morlea plataniifolia*, S. & Z., 八角槲.

CRASSULACEÆ.—景天科.

Jap., 692, *Cotyledon spinosa*, L., 昨葉何草.

" *malacophylla*, Pall., var. *japonica*, Fr. & S.,

石蓮華.

" 1586, *Penthorum sedoides*, L., 扯頭葉.

" 2041, *Sedum erythrostictum*, Miq., 景天.

" 2043, " *kamtschaticum*, Fisch., 費菜.

" *lineare*, Thbg., 佛甲草.

CRUCIFERÆ.—十字花科.

Jap., 141, *Anastatica Hierochuntina*, L., 含生草.

" 193, *Arabis perfoliata*, Lam., 南芥葉.

" 373, *ff. Brassica* [v. 361].

Jap., 444, *Capsella* [v. 367].

" 455, *Cardamine sylvatica*, Link., 碎米薺.

" 932, *Eutrema Wasabi*, Max., 山蓴菜.

" 1170, *Isatis* [v. 392].

" 1400, *Matthiola incana*, R. Br., 紫羅欄花.

" 1486, *Nasturtium montanum*, Wall., 水芥菜 (蔊蔊).

" 1862, *Raphanus sativus*, L., 萊菔.

" 2085, *Sinapis*. [V. 362.]

" 2089, *Sisymbrium*. [V. 434.]

" 2196, *Thlaspi arvense*, L., 遏藍菜.

CUCURBITACEÆ.—蒴蘆科 [v. 382-387].

CUTULIFERÆ.—殼斗科 [v. 539, *Castanea*, v. 494].

CYCADACEÆ.—蘇鐵科.

Jap., 724, *Cycas revoluta*, Thbg., 鳳尾松.

CYPERACEÆ.—莎草科 [v. 97, 463].

Cyperus Iria, L., 莎草.

Helocharis plantaginica, R. Br., v. 59, 荊薺.

DIAPENSACEÆ.—岩梅科. *Jap.*, 791.

DIOSCOREÆ.—薯蕷科. [V. 379.]

Diosc. gracillima, Miq., 蕪蝦薯.

DIPSACEÆ.—山蘿蔔科.

Jap., 815, *Dipsacus japonicus*, Miq., 山芹菜.

" 2008, *Scabiosa japonica*, Miq., 山蘿蔔.

DROSERACEÆ.—茅膏菜科.

Jap., 828, *Drosera lunata*, Buch., 茅膏菜, 石龍牙草.

EBENACEÆ.—柿樹科, 491, 484.

ELEAGNACEÆ.—胡頹子科.

Jap., 840, *Elaeagnus longipes*, A. Gray., 胡頹子 (*El. p.*).

" 842, " *pungens*, Thbg., 木半夏 (*El. long.*).

EQUISETACEÆ.—木賊科.

Jap., 875, *Equisetum arvense*, L., 問荊.

" 876, " *hyemale*, L., var. *japonicum*, Milde., 木賊.

" 878, " *ramosissimum*, Desf., 節草.

ERICACEÆ.—石南科.

- Jap.*, 146, *Andromeda japonica*, Thbg., 桜木.
 „ 148, „ *ovalifolia*, Wall. (*Pieris*, Don.), 綬木
 (南燭).
 „ 630, *Clethra barbinervis*, S. & Z., 山茶科.
 „ 1261, *Leucothæ Grayana*, Max., 木藜蘆.
 „ 1456, *Monotropa uniflora*, L., 水晶蘭.
 „ 1817, *Pyrola rotundifolia*, L., 鹿蹄草 (鹿銜草).
Rh. brachycarpum, Don., 石南.
 „ 1878, *Rhododendron indicum*, Sw., var. *Kämpferi*, Max.,
 山躑躅.
Rhododendron indicum, Sw., var. *macranthum*, Max.,
 杜鵑花.
Rhododendron indicum, Sw., var. *obtusum*, Max., 石巖.
 „ 1881, „ *ledifolium*, Don., var. *leucanthum*, DC.,
 白杜鵑花.
 „ 1883, „ *Metternichii*, S. & Z., 石南, 馬銀花.
 „ 1888, „ *sinense*, Sw., 羊躑躅.
 „ 2276, *Vaccinium Vitis idæa*, L., 越橘.

ERIOCAULEÆ.—穀精草科.

Eriocaulon sexangulare, L., 穀精草.

EUPHORBIACEÆ.—大戟科. *Aleurites* [v. 515].

- Jap.*, 395, *Buxus japonica*, Möll., 錦熟黃楊.
 „ 396, „ „ var. *microphylla*, Möll., 黃楊木.
 „ 705, *Croton Tiglium*, L., 巴豆.
 „ 760, *Daphniphyllum macropodum*, Miq., 楠.
 „ 846, *Elaeococca* [v. 515].
 „ 916, *Euphorbia helioscopia*, L., 澤漆.
 „ 917, „ *humifusa*, Willd., 地錦.
 „ 918, „ *lasiocaula*, Boiss., 大戟.
 „ 919, „ *Lathyris*, L., 續隨子.
 „ 921, „ *Rochebruni*, Fr. & S., 草蘭茹.
 „ 922, „ *Sieboldiana*, Morr. et Decne., 甘遂 (大戟).
 „ 1430, *Mercurialis leiocarpa*, S. & Z., 山欒.

Jap., 1615, *Phyllanthus Urinaria*, L., 葉下珠.

" 1913, *Ricinus communis*, L., 蓖麻.

" 1926, *Rottlera* [v. 290].

" 1991, *Sapium sebiferum*, Roxb., 烏臼木.

FICOIDEÆ.—番杏科.

Jap., 1449, *Mollugo stricta*, L., var. *latifolia*, Fenzl., 粟米草.

" 2185, *Tetragonia expansa*, Ait., 番杏.

FILICES.—羊齒科 [v. 377].

GENTIANACEÆ.—龍膽科.

Jap., 1001, *Gentiana scabra*, Bge., var. *Buergeri*, Max., 龍膽.

" 1282, *Limnanthemum indicum*, Griseb., 金銀蓮.

" 1283, " *nymphoides*, Lk., var. *japonicum*, Miq.,

苔菜 [v. 47, 399].

" 1421, *Menyanthes trifoliata*, L., 睡菜.

" 1518, *Ophelia* (*Swertia*) *bimaculata*, S. & Z., 獐牙菜.

GERANIACEÆ.—牻牛兒苗科.

Jap., 1007, *Geranium nepalense*, Sweet., (紫地榆) 牻牛兒苗. (*Erodium cicutarium*, Lem., var. *pimpinellifolium*, Cav.).

Geranium Robertianum, L., 漢葭魚腥草.

" 1142, *Impatiens Balsamina*, L., 鳳仙花.

" 1145, " *Textori*, Miq., 野鳳仙花.

" 1543, *Oxalis corniculata*, L., 酢醬草.

" 2249, *Tropaeolum majus*, L., 金蓮花.

GESNERACEÆ.—苦苣苔科.

Jap., 655, *Conandron ramondiioides*, S. & Z., 苦苣苔.

GNATACEÆ.—麻黃科.

Jap., 865, *Ephedra vulgaris*, Rich., var. *helvetica*, Hk. & Thomps., 麻黃.

GRAMINEÆ.—禾本科. [V. 459-463.]

Phragmites macer, Munroe, 蘆.

Eragrostis pilosa, Beauv., 畫眉草.

Diarrhena japonica, 龍常草.

Setaria excurrans, Miq., 草草. (Coix are reversed.)

- Miscanthus jap.*, Bth., 芒 [compare 188]. *Eleusine coracana*, Gaertn., 稷. *Arundo Roxb.*, Kth., v. 455. 荻蘆竹.
- HALORAGRÆ.—蟻塔科 [v. 401]. *Callitriche stagnalis*, Scop., 水馬齒.
- HAMAMELIDÆ.—金縷梅科.
- Jap.*, 820, *Distylium racemosum*, S. & Z., 蚊母樹.
- „ 1066, *Hamamelis japonica*, S. & Z., 金縷梅.
- Liquidambar* [v. 261].
- HÆMORACEÆ.—即心蘭科.
- Aletris japonica*, Lam., 粉條兒菜.
- Ophiopogon japonicus*, Gawl., 小葉麥門冬 [v. 108].
- Liriope spicata*, Lour., 大葉麥門冬.
- HYDROCHARIDÆ.—水鼈科.
- Jap.*, 2280, *Vallisneria spiralis*, L., 苦草.
- Hydrocharis* [v. 400]. (*H. asiatica*, 馬尿花).
- HYPERICINÆ.—金絲桃科.
- H. Ascyron*, L., 湖南連翹.
- Jap.*, 1118, *Hypericum chinense*, L., 金絲桃.
- „ 1119, „ *erectum*, Thbg., 小連翹.
- „ 1122, „ *patulum*, Thbg., 金絲梅.
- „ 1123, „ *Sampsoni*, Hce., 元寶草.
- ILICINÆ.—冬青科 [v. 490].
- IRIDÆ.—鳶尾科.
- Jap.*, 702, *Crocus sativus*, L., 番紅花, 泊夫藍.
- „ 1160, ff. *Iris* [v. 467].
- „ 1565, *Purandanthus chinensis*, Ker., 射干 (*Belamcon lu chin.*, Ad.).
- JUGLANDACEÆ.—胡桃科.
- Jap.*, 1194, *Juglans cordiformis*, Max., 陳倉胡桃.
- „ 1195, „ *regia*, L., var. *sinensis*, Casim., 胡桃.
- „ 1196, „ *Sieboldiana*, Max., 山胡桃.
- „ 1657, *Platycarya strobilacea*, S. & Z., 化香樹.
- JUNCACEÆ.—燈心草科.
- Jap.*, 1198, *Juncus balticus*, Deth., 石龍芻 [v. 16, 455].

Jap., 1200, *Juncus communis*, var. *effusus* [v. 176].

" 1335, *Luzula* [v. 455].

LABIATÆ.—唇形科.

Jap., 85, *Ajuga decumbens*, Thbg., var. *sinnata*, Fr. & S., 金瘡
小草.

Var. *typica*, Fr. & S., 筋骨草.

" 385, *Brunella vulgaris*, L., 夏枯草.

" 405, *Colamintha chinensis*, Bth., 風輪菜.

" 572, *Chelonopsis moschuta*, Miq., 鈴子香.

" 857, *Elsholtzia cristata*, Willd., 香薷.

" 1226, *Lamium album*, L., var. *barbatum*, 續斷, 野芝麻.

" 1243, *Leonurus* [v. 444].

" 1326, *Lophanthus rugosus*, Fisch., 排草香.

" 1355, *Lycopus europanus*, L., 地瓜兒苗.

" 1424, *Mentha arvensis*, L., var. *vulgaris*, Bth., 薄荷.

Mosla grossescrata, Max., 藿香.

" 1461, *Mosla punctata*, Max., 爵牀 (石薺寧).

" 1491, *Nepeta Glechoma*, Bth., 連錢草.

" 1492, " *japonica*, Max., 假蘇.

" 1503, *Ocimum basilicum*, L., 羅勒.

" 1588, *Perilla* [v. 64]. (*Perilla arguta*, Bth., 紫蘇).

" 1665, *Plectranthus longitubus*, Miq., 香茶菜.

" 1924, *Rosmarinus officinalis*, L., 迷迭香.

Salvia [v. 17]. *S. jap.*, var. *hipianata*, Fr. & S.,

丹參.

Salvia plebeia, R. Br., 荊芥.

" 2036, *Scutellaria* [v. 447].

Stachys aspera, Michx., var. *jap.*, Max., 水蘇.

" 2139, " *Sieboldi*, Miq., 草石蠶 (*St. affinis*, Bge.)

LARDIZABALÆ.—木通科 [v. *Berberideæ*].

LAURINEÆ.—樟科 [v. 512].

Lindera strychnifolia, Bth. et Hkr., 天台烏藥.

LEGUMINOSÆ.—豇科 [v. 354].

Bauhinia japonica, Max., 田螺虎樹.

Crotolaria sessiliflora, L., 野百合.

Desmodium podocarpum, DC., for *D. Oldhami*, Oliv.

Glycina soja, S. & Z., 豇豆.

Lotus corniculatus, L., var. *japonicus*, Regel., 牛角花.

Wistaria chinensis, S. & Z., 紫藤.

LEMNACEÆ.—浮萍科 [v. 400].

LENTIBULARIÆ.—狸藻科.

LILIACEÆ.—百合科. [*Allium*, v. 360].

Asparagus [v. 108, *Ancmarrhena*, v. 94].

Jap., 244, *Aspidistra lurida*, Gaw., 蜘蛛抱蛋.

" 322, *Barnardia japonica*, Rœm. & Sch., 綿棗兒.

" 422, *Calodragon nobilis*, Planch., 朱蕉.

" 784, *Dianella odorata*, Bl., 竹葉蘭.

" 817, *Disporum pullum*, Salisb., 萬壽竹.

" 899, *Erythronium denscanis*, L., 車前葉山慈姑.

Funkia and *Heemerocallis* [v. 424].

Fritillaria [v. 75, 423].

" 1072, *Helinopsis grandiflora*, Fr. & S., 粉條兒菜.

" 1083, *Heterosmilax japonica*, Kth., 土夜苓.

" 1270, *Lilium auratum*, Ldl, 天香百合.

" 1273, " *concolor*, Salisb., var. *pulchellum*, Fisch., 山丹

" 1274, " *cordifolium*, 蕎麥葉貝母.

" *japonicum*, Thbg., 百合.

" 1281, " *tigrinum*, Gawl., 零丹.

" 1527, *Orithia edulis*, Miq., 山慈姑.

" 1566, *Paris tetraphylla*, A. Gray, 玉孫.

" 1676, *Polianthes tuberosa*, L., 月下香.

Polygonatum [v. 52]. *P. giganteum*, Miq., 白及

黃精.

" 1866, *Reineckia carnea*, Kth., 吉祥草 (七厘麻).

" 1874, *Rhodea japonica*, Roth, 萬年青.

Scilla chinensis, Bth., 綿棗兒 [v. *Jap.*, 322].

" 2018, " *maritima*, L., 海蔥.

" 2094, *Smilacina japonica*, A. Gray, 鹿藥.

- Jap.*, 2095, *Smilax biflora*, Sieb., 山梨兒.
 „ 2096, „ *China*, L. [v. 386].
 „ 2097, „ *herbacea*, L., var. *nipponica*, Max., 牛尾菜.
 „ 2098, „ *Sieboldi*, Miq., 粘魚鬚.
 „ 2228, *Tricyrtis japonica*, Miq., 油點草.
 „ 2252, *Tulipa Gesneriana*, L., 鬱金香.
 „ „ *edulis*, Bzr., 山慈姑.
 „ 2284, *Veratrum album*, L., var. *grandiflorum*, Max., 蒜
 藜蘆.
 „ 2285, *Veratrum nigrum*, L., 藜蘆.

LINACEÆ.—亞麻科.

- Jap.*, 1293, *Linum* [v. 388].

LOGANIACEÆ.—馬錢科.

- Jap.*, 389, *Buddleia* [v. 465].

LORANTHACEÆ.—槲寄生科.

- Loranthus* [v. 449].

- Viscum* [v. 450].

LYCOPODIACEÆ.—石松科.

- Jap.*, 1174, *Isetes japonica*, A. Br., 水韭.
 „ 1348, *Lycopodium clavatum*, L., 石松.
 „ 1351, „ *japonicum*, Thbg., 玉柏.
 „ 2049, *Selaginella caulescens*, Spr., 兗州卷柏.
 „ 2050, „ *involverens*, Spr., 卷柏.
 „ 2051, „ *Kraussiana*, Kze., 地柏 (翠雲草).

LYTHRARIÆ.—千屈菜科.

- Jap.*, 1225, *Lagerstrœmia indica*, L., 百日紅, 紫薇花.
 „ 1370, *Lythrum virgatum*, L., 千屈菜.
 „ 1806, *Punica Granatum*, L., 安石榴.

MAGNOLIACEÆ.—木蘭科 [v. 551].

- Euptelea polyandra*, S. & Z., 雲葉.
Illicium religiosum, L. [v. 464].
Magnolia fuscata, Andr., 含笑花.
 „ *pnmila*, Andr., 夜合花.
Michelia compressa, Max., 黃心樹.

MALVACEÆ.—錦葵科 [v. 368, 369]. *Hib. rosa sin.*, L., 佛桑.
Abutilon [v. 388, 389].

MARSILEACEÆ.—蘋科 [v. 113, 114. *Jap.*, 1399].

Jap., 1984, *Salvinia vulgaris*, Mich., 槐葉蘋.

MELASTOMACEÆ.—野牡丹花.

Jap., 376, *Bredia hirsuta*, Bl., 野海棠.

„ 1408, *Melastoma macrocarpa*, Don., 野牡丹.

MELIACEÆ.—楝科 [v. 544, 520].

MENISPERMACEÆ.—防已科.

Jap., 647, *Cocculus diversifolius*, Miq., 漢防已.

„ 648, „ *laurifolius*, DC., 衡州烏藥.

„ 649, „ *Thunbergii*, DC., 木防已.

MYRICACEÆ.—楊梅科 [v. 244].

MYRISTICACEÆ.—肉豆蔻科.

Jap., 1473, *Myristica fragrans*, Houtt., 肉豆蔻.

MYRSINACEÆ.—紫金牛科.

Jap., 201, *Ardisia crispa*, DC., 百兩金, 硃砂根.

„ 202, „ *japonica*, Bl., 紫金牛.

„ 1378, *Masa dorana*, Bl., 杜莖山.

MYRTACEÆ.—桃金娘科.

Jap., 901, *Eugenia caryophyllata*, Thbg., 丁香.

„ 902, „ *Jambos*, L., 蒲桃.

„ 1791, *Psidium Guava*, L., 番石榴.

„ 1891, *Rhodomyrtus tomentosa*, Wight, 桃金娘.

NAIADEÆ.—眼子菜科 [v. 401].

Potamogeton polygon., 牙齒草.

NYMPHEACEÆ.—睡蓮科 [v. 395].

Brasenia peltata, Pursh., 蕹.

OLEACEÆ.—木犀科 [v. 544]. *Syringa vulgaris*, L., 紫丁香.

ONAGRARIÆ.—柳葉菜.

Jap., 1208, *Jussiaea repens*, L., 水龍.

Tropa [v. 397].

ORCHIDEÆ.—蘭科.

Aërides japonicum, Ldl. et Reichb., 屈子花.

Jap., 207, *Arethusa japonica*, Gr., 朱蘭. (*Pogonia ophioglossoides*, Nutt.).

„ 351, *Bletia hyacinthina*, R. Br., 白及.

„ 726, *Cymbidium ensifolium*, Sw., 建蘭.

„ 727, „ *virens*, Ldl., 朵朵香.

„ 745, *Cypripedium japonicum*, Thbg., 鬼督郵 (蘭花雙葉草).

„ 772, *Dendrobium moniliforme*, Sw., 石斛.

„ 773, „ *reptans*, Fr. & S., 雀牌斛.

„ 873, *Epipactis gigantea*, Hkr., 小紫含笑.

„ 981, *Galcola septentrionalis*, Reichenb., 山珊瑚.

„ 995, *Gastrodia elata*, Bl., 天麻.

„ 1061, *Habenaria radiata*, Thbg., 鸞毛玉鳳花.

„ 1334, *Luisia teres*, Bl., 釵子股.

Phaius grandiflorus, Lour., 虎頭蘭.

Pogonia ophioglossoides, Nutt., 朱蘭.

„ 2132, *Spiranthes australis*, Ldl., 綬草, 盤龍參.

OROBANCHACEÆ.—列當科.

Jap., 66, *Eginetia indica*, Roxb., 野菰.

„ 1530, *Orobancha ammophila*, C. A. Mey., 列當.

PANDANACEÆ.—露兜樹.

Jap., 1551, *Pandanus odoratissimus*, L., 露兜花.

PAPAVERACEÆ.—罂粟科.

Jap., 208, *Argemone mexicana*, L., 老鼠芳.

„ 1375, *Boltonia (Macleya) cordata*, R. Br., 博落通.

„ 571, *Chelidonium Majus*, L., 白屈菜.

„ 681, *Corydalis ambigua*, Cham. & Schl., 延胡索. [Other C., v. 371.]

„ 793, *Dicentra spectabilis*, Miq., 荷包牡丹.

„ 1563, *Papaver Rhæas*, L., 虞美人草.

„ 1564, „ *somniferum*, L., 罂子粟.

PASSIFLOREÆ.—西番蓮科.

Jap., 1572, *Passiflora corulea*, L., 西番蓮.

PEDALINEÆ.—胡麻科 [v. 388]. (*Sesam. indic.*, 芝麻).

PHYTOLACCACEÆ.—商陸科 [p. 112].

PIPERACEÆ.—胡椒科.

Honthuysia [p. 144].

Jap., 1643, *Piper Futo-Kadsura*, S. & Z., 土蕪藤.

„ 1996, *Saururus Luncei*, Decne., 三白草.

PITTOSPOREÆ.—海桐科.

Jap., 1645, *Pittosporum Tobira*, Ait., 海桐花.

PLANTAGINACEÆ.—車前科 [p. 439].

PLUMBAGINACEÆ.—磯松科.

Jap., 2142, *Statice arbuscula*, Max., 石莖蓉.

POLYGALACEÆ.—遠志科 [p. 443]. *Polyg. sibirica*, L., 瓜子金.

POLYGONACEÆ.—蓼科 [p. 54, 55, 366].

(*P. nodosum*, Pers., 馬蓼. *P. Thunb.*, var. *typicum*, 水麻芳).

(*P. perfoliatum*, L., 刺蓼頭). *Fagopyrum* [p. 335].

Rumex [p. 440, 441].

PONTEDERIACEÆ.—薺草科.

Jap., 1453, *Monochoria plantaginica*, Kth., 鴨舌草.

„ var. *cordifolia*, Fr. & S., 薺草.

„ 1454, „ *vaginalis*, Presl., 雨久花.

PORTULACACEÆ.—馬齒莧科.

Jap., 1738, *Portulaca oleracea*, L., 馬齒莧.

„ var. *sativa*, DC., 鈍耳草.

PRIMULACEÆ.—櫻草科.

Jap., 1362, *Lysimachia clethroides*, Duby., 珍珠菜 (扯根菜).

„ *daurica*, Willd., 黃連花.

„ 1364, „ *Fortunei*, Max., 宿星菜.

„ *sikokiana*, Miq., 排草.

„ 1769, *Primula sinensis*, Ldl., 藏報春.

RANUNCULACEÆ.—毛茛科.

Jap., 42, *Aconitum Fischeri*, Reichb., 附子.

„ 43, „ *lycoctonum*, L., 牛扁.

„ 44, „ *Napellus*, L., var. *ambiguum*, Reg., 細葉

烏頭.

„ 64, *Adonis amurensis*, Reg. & Radd., 側金盞花.

- Jap.*, 155, *Anemone cernua*, Thbg., 白頭翁.
 " 158, " *hepatica*, Gort., 獐耳細辛.
 " 159, " *japonica*, S. & Z., 秋牡丹.
 " 162, " *nikensis*, Max., 雙瓶梅.
 " 163, " *pennsylvanica*, L., 草玉梅.
 " 188, *Aquilegia atropurpurea*, Willd., 耬斗菜.
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 " 619, *Clematis apiifolia*, DC., 女萎.
 " 620, " *florida*, Thbg., 鎖線蓮.
 " 622, " *paniculata*, Thbg., 大蓼.
 " *patens*, Morr. & Dec., 轉子蓮.
 " 664, *Coptis anemonefolia*, S. & Z., 黃連.
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 " 882, *Eranthis* [v. 115].
 " 1671, *Paeonia albiflora*, Pull., 芍藥.
 " 1672, " *Moutan*, Sims, 牡丹.
 " 1852, *Ranunculus acris*, L., 毛茛.
 " 1857, " *sceleratus*, L., 石龍蒿.
 " 1859, " *ternatus*, Thbg., 回回蒜.

RHAMNACEÆ.—鼠李科 [v. 489, 272].

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- Jap.*, 71, *Agrimonia viscidula*, Bge., var. *japonica*, Miq., 龍
 芽草.
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 " 693, *Crataegus cuneata*, S. & Z., 山楂 [v. 244].
 " 694, " *sanguinea*, Pall., var. *glabra*, Max., 羊杞子.
 Fragaria [v. 436].
 " 1016, *Genm japonicum*, Thbg., 水楊梅.
 " 1211, *Kerria japonica*, DC., 棣棠花.
 " 1539, *Osteomeles subrotunda*, Koch., 小石積 (*O. anthyl-
 lidifolia*, L.f.).
 " 1608, *Photinia japonica*, Thbg., 枇杷 (*Eriobotrya*).
 " 1747, *Potentilla chinensis*, Ser., var. *hirtella*, Fr. & S., 委
 陵菜.

Jap., 1748, *Potentilla cryptoternia*, Max., 狼牙.

" 1750, " *discolor*, Bge., 雞腿兒.

" 1756, " *Wallichiana*, Del., 蛇含. (*Kleiniana*, W. & Arn.).

Potentilla ternata, Max., (var. of *fragarioides*, L.), 翻
白草.

" 1758, *Poterium officinale*, L., 地榆.

" 1759, " *sanguisorba*, L., 胡蒼耳.

Prunus [r. 470-477].

Pyrus [r. 478-482, 301].

" 1802, *Rhodotypos kerrioides*, S. & Z., 雞麻.

" 1916, *Rosa Banksia*, R. Br., 木香花.

" 1917, " *indica*, L., 月季花.

" 1922, " *multiflora*, Thbg., 野薔薇 [r. 295].

" 1923, " *rugosa*, Thbg., 玫瑰.

Rubus [r. 436]. *R. idaeus*, L., var. *strigosus*, Max., 覆盆子.

Spiraea prunifolia, S. & Z., 笑靨花.

" *cantonensis*, Lour., 麻葉繡菊.

" *Blumei*, 珍珠梅.

" *japonica*, L. f., 繡線菊.

ROXBURGHACEÆ.—百部科.

Jap., 703, *Croomia japonica*, Miq., 黃精葉鉤吻.

" 1928, *Roxburghia sessilifolia*, Miq., 百部.

" 1927, " *japonica*, Bl., 蔓生百部.

RUBIACEÆ.—茜草科.

Jap., 750, *Damnanthus indicus*, Gaertn., 虎刺, 伏牛花.

" 982, *Galium aparine*, L., 猪殃殃.

" 984, " *boreale*, L., var. *japonicum*, Max., 特生
茜草.

" 990, " *verum*, L., 蓬子菜.

" 991, *Gardenia florida*, L., 梔子 [r. 302].

" 993, " *radicans*, Thbg., 水梔子.

" 1187, *Ixora stricta*, Roxb., 寶子木.

Mussaenda parviflora, Miq., 白茶葉.

Jap., 1546, *Perderia fatida*, L., 牛皮凍, 女青.

Rubia cordifolia [v. 393].

" 2072, *Serissa fatida*, Com., 滿天星.

" 2259, *Uncaria rhyuchophylla*, Miq., 釣藤.

Webera corymbosa, Willd., 嵩香.

RUTACEÆ.—芸香科.

Citrus [v. 486-488].

Jap., 797, *Dictamnus albus*, L., 白鮮.

" 934, *Erodia rutecarpa*, Bth. & H., 吳茱萸.

" 1529, *Orixa japonica*, Thbg., 常山.

" 1957, *Ruta graveolens*, L., 芸香.

" 2092, *Skimmia japonica*, Thbg., 茵芋.

Zanthoxylum [v. 497].

SABIACEÆ.—清風藤科.

Jap., 1958, *Sabia japonica*, Max., 清風藤.

SALICINEÆ.—楊柳科 [v. 523, 524].

SANTALACEÆ.—檀香科.

Jap., 2195, *Thesium decurrens*, Bl., 百藥草.

SAPINDACEÆ.—無患樹科 [v. 550].

SAXIFRAGEÆ.—虎耳草科.

Chrysosplenium alternifolium, L., var. *japonicum*, Max., 貓兒
眼睛草.

Jap., 783, *Deutzia Sieboldiana*, Max., 洩疏.

" 1108, *Hydrangea petiolaris*, S. & Z., var. *cordifolia*, Max.,

藤繡毬.

" 1109, *Hydrangea Thunbergii*, S., 土常山.

" 1605, *Philadelphus coronarius*, L., var. *Satsunui*, Max., 山

梅花.

" 1905, *Ribes ambiguum*, Max., 蔦.

" 1914, *Rodgersia podophylla*, A. Gray, 鬼燈檠.

" 2005, *Saxifraga sarmentosa*, L., 虎耳草.

" 2016, *Schizophragma hydrangeoides*, S. & Z., 鑽地風.

SCITAMINEÆ.—薑科 [v. 379, 381].

Alpinia chinensis, Sw., 高良薑.

- Jap.*, 720, *Curcuma longa*, L., 鬱金.
 " 1464, *Musa Basjo*, S., 芭蕉.
 " 1465, " *coccinea*, Willd., 美人蕉.
 " 1466, " *sapientum*, L., 甘蕉.

SCROPHULARINEÆ.—玄參科.

- Jap.*, 1285, *Linaria japonica*, Miq., 柳穿魚.
 " 1401, *Mazus rugosus*, Lour., var. *macranthus*, Fr. & S., 通
 泉草 (雞腸菜).
 " 1577, *Panloxia* [v. 515].
 " 1581, *Pedicularis* [v. 432]. *Rehmannia* [v. 180, 68].
 " 2033, *Scrophularia alata*, A. Gray, 山玄參.
 " 2034, " *Oldhami*, Oliv., 玄參.
 " 2088, *Siphonostegia chinensis*, Bth., 陰行草.
 " 2282, *Vandelia crustacea*, Bth., 公草母草.
 " 2291, *Veronica agrestis*, L., 婆婆納.
 " 2293, " *Anagallis*, L., 水苦蕒.
 " 2296, " *longifolia*, L., 兔兒尾苗.
 " 2300, " *peregrina*, L., 蚊母草.
 " 2303, " *virginica*, L., 草本威靈仙.

SIMARUBEÆ.—黃楝樹科.

- Ailanthus* [v. 518].
Jap., 1629, *Picrasma ailanthoides*, Planch., 黃楝樹.

SOLANACEÆ.—茄科 [v. 79, 526]. (79, *S. Dulcamara*, 蜀羊泉).

STERCULIACEÆ.—梧桐科.

- Jap.*, 1585, *Pentapetes phanicea*, L., 夜落金錢.
 " 2155, *Sterculia platanifolia*, L., 梧桐.

STYRACACEÆ.—齊墩果.

- Jap.*, 2162, *Styrax japonicum*, S. & Z., 齊墩果.
 " 2163, " *Obassia*, S. & Z., 玉鈴花.
Symplocos cratagoides, Don., 山指甲.

TAMARISCINÆÆ.—檉柳科 [v. 527].

TERNSTROMIACEÆ.—厚皮香科.

- Actinidia* [v. 198, 493].

- Jap.*, 428, *Camellia japonica*, L., 山茶.
 " 429, " *Sasanqua*, Thbg., 茶梅.
 " 430, " *theifera*, Griff., 茶, 茗.
 " 431, " " var. *macrophylla*, Sieb., 皋盧.
 " 631, *Cleyera japonica*, Thbg., 楊桐.
 " 928, *Eurya japonica*, Thbg., 桤.
 " 2140, *Stachyurus praecox*, S. & Z., 旌節花.
 " 2183, *Ternstroemia japonica*, Thbg., 厚皮香.

THYMELIACEÆ.—瑞香科.

- Jap.*, 187, *Aquilaria Agallocha*, Roxb., 沈香.
Daphne [v. 465].
 " 755, " *kiusiana*, Miq., 白瑞香.
 " 756, " *odora*, Thbg., 瑞香.
 " 836, *Edgeworthia papyrifera*, S. & Z., 黃瑞香.

TILIACEÆ.—菩提樹科.

- Corchorus*, *Corchoropsis* [v. 388].
Jap., 845, *Elaeocarpus photiniaefolia*, H. & A., 膽八樹.
Tilia Miqueliana, 菩提樹.

TYPHACEÆ.—香蒲科 [v. 98, 375].

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URTICACEÆ.—蕁麻科.

- Jap.*, 850, *Elatostema involucreatum*, Fr. & S., 赤車使者
 (*umbellatum*, Bge.), (樓梯草 *El. invol.*).
 " 1102, *Humulus japonicus*, S. & Z., 葎草.
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VALERIANACE.—敗醬科

Jap., 2278, *Valeriana officinalis*, L., 甘松

" 1574, *Patrinia palmata*, Max., 地花菜.

" 1575, " *scabiosifolia*, Lk., 敗醬.

VERBENACE.—馬鞭草科 [v. 521].

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This list of plants was prepared from MATSUMURA's work before knowing of the existence of the Tokyo Catalogue of Plants. The latter omits a large number of M's Chinese names, but gives a few of other plants. They have been added here without a special mark. All with the mark "*Jap.*" and a No. refer to MATSUMURA's. It must be borne in mind that it is not a complete list of Chinese plants which is intended, but of Chinese names of plants and of their identifications in Japan. These identifications cannot yet be considered as final, but merely as tentative, till corresponding evidence has been found in China. The alphabetical arrangement of the orders will facilitate research. Time did not admit of including the names in this list in the Index of Chinese Names which follows hereafter.

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Prepared by Dr. E. FABER.

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PROCEEDINGS.

*MINUTES of a GENERAL MEETING held in the Society's Library,
Museum Road, Shanghai, on Tuesday, 11th November 1890, at
9 p.m.*

Mr. P. J. HUGHES (President) in the chair. There were about 30 persons present.

In opening the proceedings, the CHAIRMAN said that as the minutes of the last meeting had been already published in the Society's Journal, he thought they might be taken as read. He had to announce that during the past half-year the following gentlemen had been elected members of the Society; namely, Messrs. C. W. Campbell, of Seoul, Corea; Prof. E. P. Thwing, M.D., of Canton; Rev. A. Elwin, of Hangchow; Prof. H. Robinson, B.A., of Wuchang; J. Calder, of Port Arthur, North China; F. B. Parkinson, A.R.S.M., of Hankow; Rev. S. A. Hunter, M.A., M.D., of Tsining, Shantung; R. Kliene, of Ningpo; Rev. C. D. Bradlee, D.D., of Boston, Mass., U.S.A.; and the following residents of Shanghai:—Messrs. O. Franke, Ph.D.; General W. Mesny; F. Lemke; F. W. E. Dülberg; B. R. A. Navarra; W. P. Brown; H. Schiötz; and J. B. Jack. This list, the Chairman thought, indicated satisfactory progress, and the statement which the Honorary Secretary was about to make respecting the Journal of the Society would, he believed, show that these publications,—which, as they were aware, members were entitled to receive free,—would be at least as valuable and interesting in the future as they had been in the past.

The HON. SECRETARY (Mr. W. Bright) then announced that the Society's Journal had been completed up to date, the last fascicule (No. 3) of vol. xxiv having been issued to members at the end of last month. The new Journal would open with a valuable paper—the result of many years' research and of much study—by a

ripe scholar, Dr. Bretschneider. It was styled "Botany of the Chinese Classics," and was, in fact, a continuation of the studies condensed in a paper by the same author which appeared, under the title "Botanicon Sinicum," in their Journal some ten years ago. The MS. had arrived safely from St. Petersburg, and had just been placed in the printers' hands. The paper would have the benefit of revision and annotation by Dr. Faber, a high authority on botanical subjects; and thus it would doubtless serve as an extremely valuable work of reference. It might be interesting to inform them that Dr. Bretschneider was at work on another paper, which, however, it was feared, would not be ready for some years, on "Chinese Medicines." In regard to the Society's circular on "Inland Communications," issued early in the year, the Secretary said that the replies received from the interior had not, on the whole, been as complete or as numerous as could have been desired. It was therefore decided to reissue the circular to those provinces from which replies had not yet come in. Some of the papers received, however, were especially valuable, chief among which might be mentioned the exhaustive monograph by the Rev. Père Havret on the province of Anhwei, accompanied by two maps; a paper by Mr. Chr. Jensen on the Yunnan province, also accompanied by three maps of routes over which he had personally travelled in laying the telegraph line of the Imperial Chinese Telegraph Administration; and a paper by Mr. George Graham Brown on the province of Kansu, with some valuable notes on the Bridge of Boats (800 feet long) at Lanchow. In all, the replies received might be summarised thus: 5 papers from Yunnan [it would seem that the most distant parts were the earliest to send in the information desired], 4 from Kiangsu, 3 each from Kansu and Shensi, 2 each from Chihli and Anhwei, 1 each from Southern Formosa, Kwangtung (Pakhoi), Honan, Shansi, Hainan, Kwangsi and Mongolia. They were much indebted to those who had already favoured them with information, and there could be no doubt that should their anticipations in regard to obtaining further information be realised, the series of papers, when edited and prepared for publication by Mr. W. R. Carles (who had the work now in hand) would form a most valuable addition to their limited knowledge of the

roads (ancient and modern) and their condition, trade routes, modes and cost of travelling and of conveyance of goods and accommodation for travellers, and noteworthy bridges, viaducts, etc. throughout China; the work might ultimately lead to the publication of a much-needed map of the highways and trade routes in the interior. It would, he considered, be an advantage if correspondents would forward photographs of the important bridges in their province, together with brief notes of the number and span of the arches, dimensions and estimated weight of the larger blocks of stone used in the construction of the bridges. Such photographs and notes would undoubtedly impart additional interest to the subject.

Dr. EDKINS then commenced his lecture "China 35 Centuries Ago" with the remark that no advantage was gained by cutting short the antiquity of civilised nations. Civilisations have usually been found after careful inquiry to be much older than was thought. The true foundations of the Chinese civilisation were laid in the third millennium before Christ, when the people taught by the sages learned their various occupations. It was at that time that the present system of government, in respect to some of the offices, commenced. Honan was the garden of China at that time, and it was there that the capital of the empire was fixed both in the Hia and in the Shang dynasties. The fertility of the land has been described by Riehthoven, who compares the rich appearance of the agriculture to that of the most fertile portions of Europe. More precisely, the capital of China 35 centuries ago was Kweite Fu. Capital cities were built where the people were numerous and well-to-do—made so by agriculture, so that they had a learned class and were able to maintain with their superfluous wealth as well physicians, diviners, schoolmasters and astrologers as the officers of the government military and civil. The character of the Shang dynasty (1776 to 1154 B.C.) was moral and religious as compared with the Chow period when religious usages of a more polytheistic form than before were adopted in profusion and the people in their customs deserted the simplicity of ancient life. The ancient bronzes now preserved in the imperial and private collections testify to the mechanical progress made by China at that early time. The

manufacture of circular vases implies the previous use of the potter's wheel. At that time the rich used cups of gold and the poor had turned wooden bowls, but rude unglazed stoneware was made. Mr. Carles has lately sent to Shanghai a rubbing of a Chow dynasty bronze kept in a temple on Silver Island. Its age is determined by Chinese archaeologists to be about B.C. 800, as is decided by the inscription of forty characters inside of the vase. The so-called tadpole writing was referred to. It seems to have been like the cuneiform in the stroke, and this circumstance may be taken as adding a certain amount of proof to the opinion that the Chinese derived the art of writing from Babylonia. The slow music and solemn religious dance of the ancient Chinese in their ceremonials accompanying the worship of heaven and of ancestors were alluded to. They remind us of the dances of the ancient Jews as referred to in the Old Testament. Towards the end of the Shang dynasty a relative of the Chow imperial family proceeded to Soochow and was the founder of the Chinese civilisation of the Soochow plain. Ki-tsz, who was a sage belonging to the imperial family of the Shang dynasty, went to Corea and there first introduced the Chinese early civilisation.

At the conclusion of Dr. Edkins' lecture, the CHAIRMAN said that the very learned and interesting lecture which they had just heard touched upon several debatable points, such as the existence of the dragon and the presence of Persian missionaries in ancient China. These would doubtless receive due attention from sinologists, and he hoped among those present there were some who would favour them with their views. The small number of ancient monuments must be one great difficulty in the study of Chinese archaeology. Unchanging as the Chinese were, and attached as they were, and had always been, if not to the homes of their ancestors, at least to their ancestral graves, they built their dwellings and even their temples for present use with small regard to posterity. Hence few traces remain in brick and mortar or in stone of the Chinese of five empires, not to speak of thirty-five centuries ago. No Herculaneum or Pompeii had been, or ever would be, found in China to bring vividly before them the everyday life of the past. For information about the period discussed they had to trust chiefly to traditions

preserved in records of later date. They were obliged to the Rev. Dr. Edkins for the light thrown upon this obscure subject by the result of his studies as communicated in the lecture of that evening, and he had no doubt that the meeting would join with him in tendering to the learned doctor a hearty vote of thanks.

The CHAIRMAN having announced that the meeting was now open for discussion,

Gen. MESNY said he agreed that considerable elevation of the soil of China must have taken place. He instanced a *pei-lo* which had been erected in the 13th century, and of which a good deal had been covered by accumulations of soil.

Dr. E. FABER said that it was with much interest in the subject that he followed the learned lecture of Dr. Edkins. As the discourse contained, however, many statements which were disputable, it would be impossible to enter into a detailed discussion at that moment. They all agreed that China enjoyed an ancient civilisation; they even agreed so far with Dr. Edkins as to admit that the Chow dynasty was not the beginning of mankind in China, but that other people had existed before the Chows and had managed in one way or another to live in society, or—in the sense of Aristotle—in political state. The astronomical data, however, referred to by Dr. Edkins were without scientific value. It had not been possible, in spite of repeated attempts made by eminent scholars and astronomers, to fix one date before 800 B.C. Stars were, of course, on the sky and people lived below the sky long before 1000 B.C., but to determine from the vague Chinese records referring to the period before 800 B.C. the exact identification of a single star, its exact position at a certain time, and even the hour of observation to which the record belonged was an impossibility. Persian influence on China at the early period of about 1700-1200 B.C. should be proved by some incontrovertible evidence, not merely by a supposed similarity of two or three ideas among hundreds which differed altogether. The same rule applied to the cuneiform writing of the Mesopotamian valley. That the tadpole characters, of which no trace was left in China, were cuneiform was a tadpole theory without the slightest historical proof. If Persian and Babylonian

literature had been known in China at so early a period, China must also have been known to Persia and Babylon, but not even a trace of China had been discovered in any ancient record of any country.

They were told of bronze-casting during the Shang period. But it had first to be shown that bronze was known in China at the time. The character for copper did not occur in the ancient Classics, nor even in the *Four Books*. The phrase "three metals" was found several times, but only commentators of the Han time told them that gold, silver and copper were meant, other commentaries said that it referred to three kinds of gold. Dr. Edkins told them that some bronze relics from the Shang period were still preserved, but forgot to give the evidence. That some Chinese authors said so was not sufficient reason; they needed to know on what ground the assumption was based. Dr. Edkins himself mentioned the gradual elevation of the soil in the plains of North China from an accumulation of dust ten to fifteen feet in historical times within 1,000 to 1,500 years, which was corroborated by General Mesny. They could consequently not expect any ancient bronzes to be found near to the surface. Ancient graves must now be 20 to 30 feet below the ground. Whatever was found nearer to the surface could not belong to a period B.C. He (Dr. Faber) had examined several Chinese works on antiquities and found none of them satisfactory. The Chinese had no test of any value by which to determine the age of any bronzes, even of later times. They had a theory that bronze which had been for 1,000 years in the ground assumed a blue colour, and if for 1,000 years in water a green colour. Chinese critics, however, were aware that the same colours might be produced artificially in a short time. The Silver Island bronze referred to, of which he had the pleasure of seeing a rubbing at Dr. Edkins', could not possibly belong to 800 or 900 B.C. but might be referred with more probability to the Ming period 2,000 years later. The famous Yüan Yüan, who defends its age, shows his own disqualification for judging bronzes by stating that the polished appearance of the burner was due to a peculiar composition of the bronze: No trace of atmospheric influence on this bronze for 2,700 years!—Other Chinese authors are well aware of the innumerable counterfeits and

forgeries sold as genuine in China. One Ming author told them that in his time ancient bronze was manufactured in the Shantung, Shensi and Honan provinces, at Nanking and other places. Dr. Hirth's explanation of the Chinese Meander as representing, according to a Sung writer, the ancient characters for "cloud" and "thunder," did not prove that the ornament was known in China 2000-2500 years before that Sung writer. The duke of Chow was a famous statesman, and had for this very reason no time for writing books. He helped to establish the Chow dynasty and may have sketched the rudiments of its institution. The time before the Chow and even during the first centuries of the Chow government was not at all a period of high social and political development. Dr. Edkins referred to foreign tribes that still inhabited even the small arena of China proper at the time. The Emperors had really little or no control over the hill tribes. The Honan plain was nearly all they had really in their possession. It might be true that Kitesu, a younger brother of the founder of the Chow, went to Korea, but the real history of Korea begins a thousand years later. The plain of Soochow was more attractive and remunerative, but it was even in the time of Mencius still regarded as in a semi-barbarous state. They had also to distinguish between the Feudal states in the beginning of the Chow dynasty and the Feudal states in their highest development in China during the time of the Contending States, about 500 B.C. They might regard them, in their first stage, as quasi-independent clans under a chief each, or controlled by the head of the family. The chiefs gradually assumed the dignity, magnificence, and ceremonial of princes, but probably not before the time of the Chow. How little dignified the early rulers of China were they could learn from passages in the Classics. Yao inspired awe by dressing in a garment hanging down over his legs. Shun, Yao's son-in-law and fellow-emperor, was sent by his parents out on to the top of their hut (palace?) to repair the roof made of straw. Another time he had to go down into a well to repair it. Though of Imperial descent he worked with his own hands in the fields. There he felt his loneliness and sighed to the blue sky because his parents would not allow him to marry. The great Yu worked so

hard in splitting the rocks of the Yangtze Gorges that his hands became callous. The people did not feel the existence of a government before the Chow; everybody did as he pleased. Dr. Edkins introduced a eulogy of Chinese ancestral worship altogether out of place. The Shang were religious more than the Chow, but ancestral worship was brought into the peculiar Chinese shape and made the basis of political government by the Chow, especially the Confucian school. That reverence of parents and continuance of genealogies through millenniums are possible without ancestral worship, with all its humbug and social evils, Dr. Edkins may learn from a look into the Bible; the Jews may serve as patterns even to the Chinese. Dr. Edkins' paper was after all very defective. Of the principal sources of comparatively reliable information about the Shang, which cannot be received from Confucian sources without great caution, Dr. Edkins seemed to have no idea whatever. He (Dr. Faber) referred to Taoism in its earliest form. Taoism was a survival of the religious, political and social life of the Shang period. As he, however, intended to write a paper on this subject, this notice must suffice for the present. They knew further that the line of the Shang rulers was continued even in the Chow period in the state of Sung. Though in the course of time many ancient usages were neglected, and Confucius thought what he found there in his time insufficient to attest antiquity, we may be able to glean something of value from the earlier records of the Sung state. It is remarkable that Mihism, *i. e.* Chinese Socialism, had its origin and head-quarters in Sung. Chinese bronze also required a separate paper, for which some preparation was going on.

Dr. JAMIESON regretted that a scholar of Dr. Edkins' reputation should have believed so blindly in the authenticity of Chinese authorities. He himself had never been able to find in Chinese literature any criticism which was not of the most vapid, verbal kind. He did not think an appreciation of what we meant by criticism of history had entered into the Chinese mind. It was well known that Chinese of the literary class were always prepared with an answer, however little they might know of the subject. In proof of this he gave a reminiscence of his student days in Peking,

when a number of the students amused themselves by inventing, as existing in Europe, various wonders which their Manchou teacher always asserted to have existed in China centuries before. The only thing the teacher could not credit China with was an electrical hen which laid eggs containing bacon.

Dr. EDKINS said that some remarks in answer were required from him on account of the attack made on his opinions by some of the speakers. In regard to the possession of the critical faculty by the Chinese, it was not long after arriving in this country that he became aware of it. In a book belonging to Mr. Wylie he found a statement made that the tones of the language grow gradually and that one was added every thousand years or more. He studied the subject of tones, inquired as to the peculiarities of dialects, and found that it was as this author maintained. Since that time he had felt no doubt in regard to the critical powers of Chinese native scholars. The critical faculty was the result of education. In Europe it appeared in many persons because they had learned languages and studied logic, philosophy and grammar. In the same way in China reading many books and long-continued advantages of education produced it. Students went over a wide range of reading, and became familiar with argument, and so their critical powers were developed. One sees it in the documentary style of Chinese diplomacy. Subjects of discussion are in official documents stated with great clearness. There was no difficulty in seizing on the main idea and sense of the document. This was the result of Chinese education, which from some points of view was really a wide one, the literature of the country being very extensive. Bringing this critical faculty to the study of the sacrificial vases and other implements professing to belong to antiquity, native scholars were not likely to be easily deceived.*

* The following note from Dr. Bushell of Peking was received too late to be read at the meeting:—"There is a wealth of literature upon the famous tripod vase preserved in Silver Island. I have more than one special brochure, in addition to the notices in the general Archaeological Collections. Do you remember my once asking your kind intervention with Li Shen-lan, to check one of the calculations of the date from the cyclical day given in the inscription? His conclusion also was that it was correctly attributed to the time of Hsüan Wang of the Chou dynasty."

The improvement observable in the critical powers and intellectual attainments of the Chinese was due to the invention of printing. That led to the multiplication of books. They were found in every village and city, and of course the knowledge of the student as it increased improved his reasoning faculties. It had not been without result that the Chinese had through four dynasties printed books largely. This mode of looking at the subject was needed in judging of the antiquity of parts of their literature. They could test the results of Chinese criticism by appealing to their own science. The most ancient fragments of Chinese literature were not of a mythical kind. They do not contain such myths as are found in Livy, nor could they be rejected as the early parts of Livy were rejected. But they do contain some astronomy. The places of the stars as there given agree with the positions of those stars as now known by the law of the precession of the equinoxes. Those positions could not have been known to the Chinese except by actually observing them. Thus the stars in the sky are witnesses to the correctness of these ancient records. Since the astronomy in old Chinese literature was correct, this must be viewed as evidence favourable so far to the claims to acceptance of the narratives in which it was imbedded.

The meeting then terminated with a vote of thanks to the Chairman.

MINUTES of PROCEEDINGS at a GENERAL MEETING held at the Society's Library, Museum Road, Shanghai, on Monday, 6th April 1891, at 9 p.m.

Dr. JOSEPH EDKINS, Vice-President, occupied the chair, and there were about twenty members present.

The CHAIRMAN having asked that the minutes of the last meeting be taken as read, as they had been so fully published in the papers, the Honorary Secretary, Mr. Menzies, announced the election of the following new members:—Messrs. Henrick Bohr, Ting I-hsien, Harold Browett, J. F. Billingham, E. Gerecke, Ling Camera, J. P. Donovan, W. M. Andrew and J. Timm, of Shanghai;

Mr. Juan de Licopolis Maryal, of Peking; and A. Zooyef, M.D., Naval Surgeon, Vladivostock.

The CHAIRMAN brought before the meeting a motion, proposed by Dr. Jamieson and seconded by Mr. von Mölleudorff, which had been before the Committee Meeting, and which it would be necessary to confirm at the next General Meeting, to the effect that Mr. P. J. Hughes be made an Honorary Member of the Society.

Mr. FRASER then proceeded with the reading of his paper on the Fish-Skin Tartars, which is printed *in extenso* pp. 1-43 of vol. XXVI.

Mr. FRASER was accorded a round of hearty applause at the conclusion of his paper, after which the Chairman said they were all deeply indebted to Mr. Fraser for these very valuable translations from the Russian, which showed what they might expect to gather from Russian sources, and they were very fortunate in having a member of the Society able to translate them. The subject, the Chairman added, was now open for discussion.

Mr. TAYLOR asked why were the Orotchis called Fish-Skin Tartars.

Mr. FRASER replied that strictly speaking it was a name applied by the Chinese to the Goldis, to whom the Orotchis are closely allied.

The CHAIRMAN:—The Orotchi children are dressed in fish-skins. I have been looking into the accounts of the Tungusic tribes about which we have been told this evening, and to which the Manchus belong, and I find they have been minutely described by the Russians. It is a Russian account we have just heard; a new mode of conducting research in a way very suitable for our Society is thus initiated. We may gain much valuable information on the northern nations of Asia from Russian sources. The Orotchis belong to a people who, as we judge from their language, were once a great nation. The Tungusic people before the time of Christ were powerful in North China till about B.C. 200, when they were conquered by the Hsiung-nn. After a few centuries they reappeared, and acquired great political power in the sixth century. They are

in fact the same race, as we judge by their language, with the Manchus of to-day. They are now in a state of intellectual decline, as we judge by their ethnological connection with other races observable in their vocabularies. Researches into the languages and customs of the outlying tribes of the race to which the Manchus belong are likely to give inaccurate views as to the causes of the Manchus having acquired their present power. We ask why they have been able to subdue and to hold in subjection a nation so much mightier than themselves as the Chinese? In the answer to this question we must not lose sight of the fact that they belong to a race, which during millenniums has occupied in Asia those countries we call Manchuria, and from which it has from time to time emerged to acquire a temporary political importance. The vocabularies of the Tungusic tribes contain words which show connection with the Chinese, the Japanese, the Mongol, the Turkish, etc. For instance *kedu*, wind in Goldi, is the Japanese *kaze*.

Mr. TAYLOR in proposing a vote of thanks to Mr. Fraser, which Mr. von Möllendorff seconded, referred to one or two points in the interesting paper just read. The custom which the Orotchis have, for instance of dipping their fishing-nets in reindeer's blood to preserve them, is very similar to a custom prevailing among the people of Formosa and of some parts of China, namely that of dipping new nets and lines in general in pig's blood, which keeps them from flossing. The witchcraft of the Orotchis also is very similar to that among the aborigines of Formosa.

General MEYER and Mr. KINGSMILL took part also in the discussion that followed, and the Chairman brought the proceedings to a close by saying:—The Orotchi and Goldi dialects belong to the Tungusic stock, as appears on examination. A strong peculiarity in them, as in Mongol and Turkish, is that the first, second and third personal pronouns are the same as our own. "Me" is the first personal pronoun throughout Tartary; more than this; it is also the basis of the pronominal suffix to the verb. The verb tree is constructed by placing this pronoun at the end for the person as in languages of the Indo-European stock. This fact, joined

with the identity of the substantive verb with our own, opens the way to the identification of the languages. This fact cannot fail to be accepted by philologists generally after no long period. This branch of the Asiatic Society would certainly do well to prosecute research in this direction in the near future. The way in which the verb is formed belongs to the essential structure of language in the Indo-European system. Being much the same in the speech of Tartary, we are compelled to adopt the principle of linguistic unity. The shapes of skulls and facial features differ, but not so much that ethnology will not find a way to account for the variations observed while allowing unity of descent.

The meeting then adjourned.

MINUTES of PROCEEDINGS at a GENERAL MEETING held at the Society's Library, Museum Road, Shanghai, on Monday, 20th April 1891, at 9 p.m.

Dr. JOSEPH EDKINS occupied the chair. There was a large number of members present.

The minutes of the last meeting having been read by the Hon. Sec., Mr. MENCARINI, the CHAIRMAN said:—Ladies and Gentlemen, the principal formal business before the meeting before I call upon General Mesny to read his paper on "Yunnan: its Treasures and Trade Routes," is to elect Mr. P. J. Hughes, recently Consul-General for Great Britain at this port, to be an Honorary Member of this Society. The number of our honorary members is very few, only six in fact, and it is a very special distinction. We members of the Council feel called upon to elect Mr. Hughes to the position of an honorary member because we feel very sensible, and I believe all the members of the Society in Shanghai unite in this feeling, that this distinction, the highest we can confer, ought to be conferred on Mr. Hughes, because of the very considerable attention he has given to the business of our meetings, and the admirable and courteous way in which he has always conducted the meetings of the Society, and the Council come before you now to ask you to confirm this election, which was mooted at the last meeting. By

our laws it is necessary, as the Secretary has mentioned in the minutes, to propose an honorary member at one meeting and elect him at another. The Council therefore now propose that Mr. P. J. Hughes be appointed an Honorary Member of this Society. Those who are in favour of this proposition will now kindly signify it by holding up their hands.

The motion was then carried unanimously amid hearty applause.

The CHAIRMAN:—The only new member elected during the interval is Mr. George Taylor. As there is no further business to transact I will now call upon General Meany to read his paper.

General MEANY:—Mr. Chairman, Ladies and Gentlemen,—The modern name of Yunnan is said to be derived from a range of mountains, on its northern frontier, called the 雲嶺 *Yün ling*. In speaking of Yunnan generally, the whole province is meant, but the same name is also applied to a prefecture in the same province. It is the chief or principal one of fourteen prefectures, hence it is called the 首府 *Shon Fu* or Chief Prefecture, but its proper name is Yünnan Fu. Besides these, there is also a country called Yünnan Hsien, in the prefecture of Ta-li Fu. All this similarity of names is rather confusing to strangers. In official documents, literary essays, and poetical effusions, the character 滇 *Tien* is used to represent the whole region known to us as Yunnan, and the combination 滇省 *Tien-Sheng* is used in like manner to designate the provincial capital. The name Tien is derived from 滇國 *Tien Kuo*, which was the name of an independent nation of the Lolo tribes, occupying that region before the Christian era. Hence the use of the character 滇 *Tien* as a convenient phonetic for the designation of that immense province, otherwise called Ynnnan.

The superficial area of Yunnan is over 100,000 English square miles. It extends through seven degrees of latitude and eight degrees of longitude, and is thus larger than Italy, but not near so densely populated as the Italian kingdom. The population of Yunnan has been variously estimated by the Chinese Government, as well as by individual collectors of such statistics, at from 3 to 17 millions.

Thus, in 1842, the official census returns gave a total of 3,574,269 families, which, according to the ordinary mode of calculation, allowing five persons to each family, gives a total of 17,871,345 individuals.

In 1877, at the close of a civil war that had lasted over twenty years, and had greatly reduced the number of inhabitants, I estimated the population to be about one million families.

Just at that time, however, there was a great influx of people from Szech'nan, and other places, so I tabulated the population at about 5,600,000. Two years later an official census was taken, and the population was then declared to be over eleven million individuals.

In ancient times the taking of the census meant preparations for levying a poll-tax, so statistics were always kept as low as possible by the heads of families, and there is then reason to believe the returns rather low. About two-thirds of the present inhabitants of Yunnan consists of various tribes of *Lo-lo*, *Li-su*, *Mu-su*, *Man-tzu* and *Miao-tzu*, collectively called or classed by the Chinese as *I-Jên*, a term which means "heathen," because the Chinese have failed to convert the native tribes to Confucianism or any other system of morality. These primitive people still retain many of their ancient manners and customs, refraining as much as possible from social intercourse with the Chinese. They have also certain tribal distinctions peculiar to the members of their respective tribes; thus the Miao-tzu and Lung Jên tribes in the eastern part of the province, live and dress differently from those of the centre and north of the province. In the east, especially in the prefecture of Kuan-nan Fn, I noticed the women were dressed in white shirts with large blue collars something like English naval service men. These women are, as a rule, exceedingly active and vigorous, fond of pleasure after their work is over in the evening, singing songs to amuse the old people, and chanting dialogues with their male admirers, whose love and passion is thereby excited to a very high pitch. The women enjoy more liberty of action and freedom from restraint than our European women. No married man ever attempts to interfere with his wife's enjoyment of pleasure, until she becomes

a mother, then a turn takes place. She becomes as virtuous as a saint, and courts her husband instead of other men. Husband and wife live as equals, and no inferiority of the wife is ever thought of in the settlement of family matters; both work hard alike. Amongst the Lo-lo and other tribes the case is very different. The women have to work hard like beasts of burden to maintain their jealous husbands in idleness and comparative ease. Quarrels ending in serious fights are not uncommon between Lo-lo men, jealous of their wives, and Chinese soldiers, admirers of the ill-used women. In the prefecture of Li-chiang Fu and northern parts of the province I have seen the women of the Mu-shi tribes working like slaves in their fields on the mountain sides, or carrying burdens in the valleys from place to place, clad in nothing better than an old piece of tattered cottonade about the loins, descending to the knees, and an undressed goatskin on their backs, fastened over their shoulders and across the chest with a raw hide thong. Thus arrayed, these poor women are exposed to the piercing cold of their snow-clad hills in winter, and to the scorching rays of a mid-day sun in summer, whilst their lazy and jealous husbands remain at home, to nurse the children, sharpen their swords, and keep their powder dry. I have also seen the savage Lu-shi, or Li-shi, in the prefecture of Yung-chang Fu, Western Yunnan, ploughing their unhealthy fields in the valley of the Lu-chiang River, with women harnessed to their ploughs instead of cattle; the men held the ploughs, and were fully armed.

A Li-shi farmer does not at all hesitate to harness his wife and mother, sister and daughter, to his plough at any time, while he, with a cross-bow and quiver of poisoned arrows on his back, a long sword in his girdle, and a short spear in one hand, follows the plough, and guides it in the furrow with his other hand. His father and uncle, or brother, son and son-in-law, all fully armed to the teeth, sit and watch the approaches to the family estate, ready to pounce on any unsuspecting Chinaman who may chance to halt on the way, astonished at the spectacle in the fields before him. As might be expected, many of these hardly used native women contract alliances with Chinese soldiers, who treat the

women much better than their native tribesmen. The offspring of such mixed alliances are usually better looking and more intelligent than either of their parents, and as they all speak two or more languages they generally serve as interpreters in the Chinese *yaméns*, or in one or other of the petty courts of the native tribal chief, to whom they are allied by their maternal kindred. Some of these interpreters of mixed parentage become persons of wealth and great influence by reason of their office, and are justly respected by all classes. Some of them, however, only succeed in exciting the hatred of all persons who know them. Having acquired only the vices of both races, without the virtues of either, they concentrate in themselves the very essence of evil, ending their last days in the lowest depths of infamy.

Yunnan is bounded on the north by Thibet and Ssŭ-ch'nan; on the south by Siam, Annam, and Tongking; on the east by Kuei-Chow and Kuang-si, and on the west by Assam and Burma.

It is thus surrounded on three sides by foreign countries, the inhabitants of which are probably of kindred race with one or other of the various tribes inhabiting those parts of Yunnan adjoining their respective states.

The armies of the Chinese Emperor Han Wu Ti are said to have penetrated into Yunnan in the second century a.o., but no successful colonisation of the country was effected until the third century a.d., when the armies of Sin Pi, under the distinguished commander Chn Ko Siang, invaded the country, and subjugated its inhabitants to the sovereign rule of the Minor Han state, the capital of which state was at Chêng-to Fu, in Ssŭ-ch'nan.

Yunnan does not appear to have been regularly annexed and officially administered as a Chinese province until the thirteenth century, when Kublai Khan, the Mongolian conqueror of the Chinese Empire, penetrated with his victorious troops through the whole of Yunnan, even to Burma, imposing his Imperial sway over both those countries, and in fact over nearly the whole of Asia.

The provincial government of Yunnan—including the Viceroyalty of the Yun-Kuei Provinces—is centered in the important walled city, called 雲南省城 Yunnan Shêng Ch'êng. The same is also

the prefectural capital of 雲南府 Yünnan Fu and the county seat of the 昆明縣 K'un Ming Magistracy. It lies in Lat. 25° 06 N., Long. 102° 52 E. of Greenwich, on the very brink of the famous Lake 滇池 Tien Chih and 2,000 miles by road south-west from Peking. This vast province is officially divided and subdivided for the convenience of better administration in much the same manner as other Chinese provinces; that is, as follow:—4 Circuits, 14 Prefectures, 4 Departments, 8 Districts, 13 sub-Prefectures of the Ting class, 26 sub-Prefectures of the Chou class, and 39 Counties, all of which are entirely under Chinese rule. Besides the above, there are 3 Prefectures, 6 sub-Prefectures of the Chou class, and 4 Counties, enjoying home rule under hereditary native chieftains.

The principal rivers flowing through Yunnan are eight in number, and they are named as follows:—

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|-------------------|-----|------------------------------|
| 1.—Chin Sha Kiang | 金沙江 | "The River of Golden Sands." |
| 2.—Lan-tsang | 澜滄江 | Me-kong River |
| 3.—Lu | 潞江 | Salween |
| 4.—Lung Ch'nan, | 龍川江 | Dragon |
| 5.—Yüu-lung | 雲龍江 | T'ai-ping |
| 6.—Hei | 黑江 | Black |
| 7.—Hung | 紅江 | Red |
| 8.—Hsi-yang | 西洋江 | West |

The first four of these rivers take their rise in Thibet, the other four have their sources in Yunnan. None are navigable within the geographical limits of the province. The most important, though not the largest lake in Yunnan is called 滇池 Tien Chih, a name which is more applicable to a pool than to the present respectable sheet of water now under notice. *Chih* means "pool," whilst the usual Chinese name for lake is 湖 Hu. Lake Tien is about twenty-fives miles long by six or eight broad, and is navigable for boats and small steamers.

The lake is fed by many small streams, and drained by the *Pu Tu Ho*, which river throws its waters into the *Chin Sha Kiang*, about one hundred miles north of the provincial capital. Many

towns and villages lie along its shores. Communication by boat is carried on at night,—the strong winds that prevail by day rendering navigation difficult and unpleasant. The wind usually abates about three in the afternoon, and navigation commences at dusk. People subject to sea-sickness thus suffer less from the movement of the boats. The largest lake in Ynnan is called 洱海 Erh Hai, a name which suggests a sea. It is, however, but a lake, about thirty miles long by twenty miles broad in its broadest part. This lake is navigated by many boats at all hours of the day and night, and might also be navigated by steamers. It is fed by many a stream of water from the melting snow on the mountains to the north and west, and it is drained by two streams into the *Hei Kiang*, or Black River, flowing south into Annam. The city of Ta-li Fn is on its western shore. Ynnan province consists chiefly of an elevated plateau some 5,000 to 6,000 feet above sea-level.

It is intersected by several mountain ranges, some of which have peaks of great altitude, especially those near the confines of Thibet, which are perpetually covered with snow. The Tsang-shan, overlooking the important prefectural city of 大理府 Ta-li Fn and Lake Erh, Lat. $25^{\circ} 44' N.$, Long. $100^{\circ} 22' E.$, is more or less covered with snow nine months in the year. The climate of Yunnan is pleasantly cool in summer, and fairly healthy, especially on the table land forming the principal portion of the province. The valleys down which flow the San-tsang, the Sn, and the Sung-chnan rivers, are, however, very warm, sultry and dreadfully unhealthy, so much so that few people live in those valleys, although people, living on the neighboring heights, descend to cultivate various crops on the fertile slopes. The natural resources of Ynnan are great indeed. It produces everything necessary for the sustenance of a dense population, despite its present poverty-stricken appearance. Opium, hemp, flax, rhubarb and other drugs abound. Maize, rice, wheat, and other cereals are grown almost everywhere; pears, oranges, lemons, and other fruit, potatoes and other vegetables are also cultivated to more or less perfection in many different places. Fine oxen, excellent sheep, goats, pigs, dogs, ponies, asses, mules, fish, ducks, geese, peacocks and fowls, are also reared and eaten as

food by all who can afford such, Mahomedans of course abstaining from the abominable flesh of the hog and the dog. Milk, butter, cheese, tea, sugar, and salt are also produced in various parts of the province, and at reasonable prices. Clothing stuff is, however, very dear, although coarse flannels and strong silks are woven from native produce, and an abundance of fine wool is available for manufacturing the best of cloth on the introduction of suitable machinery for that purpose. The mineral wealth of Yunnan is something enormous, and almost inexhaustible. It is greater by far than that of any other province in China. Rubies and sapphires, garnets and topazes, amethysts and jade abound in the western prefectures; gold, silver, platinum, nickel, copper, tin, lead, zinc, iron, coal and salt also abound in many places. Copper is especially abundant. Its ores are of excellent quality and have been worked for ages in over one thousand different places. This rich province has been more or less open to Chinese commercial intercourse for the long period of twenty-two centuries, and it has been administered entirely as a Chinese province for six centuries or more, yet nothing appears to have been done by the Chinese Government for the benefit of the native tribes whose country has been so forcibly annexed to the Chinese Empire.

The principal object of the Chinese in retaining their hold of this province appears to have been to secure the contract of its rich deposits of copper and other metals. Millions of taels of silver are expended annually in various ways throughout the province, but despite this fact, the people are exceedingly poor, wretched and miserable. The wealthiest of the natives are neither fed, dressed, or housed with anything like comfort, not to say luxury. Their best food is frugal indeed, and their best clothing is far inferior to that worn by our servants in Shanghai, whilst most of their houses would hardly be considered good enough for the cattle on a respectable English farm.

This great misery is no doubt principally due to the lack of water communications, and the badness of all roads, but a great deal of it is also due to the general incompetency of Chinese officials to govern alien races, and to the incapacity of the wretched people to govern themselves.

Yunnan will never flourish under Chinese rule. Something better is necessary. Good roads must be made, habits of industry must be encouraged, and the *corvée* system abolished, before any good can be effected. There are ten important roads by which travellers and merchandise may reach the provincial capital of Yunnan, from various parts of China and the surrounding countries, but the best of them is not so good as the worst of country roads in England. The accommodation for man and beast on the best and most frequented is wretched in the extreme. All of them are difficult and costly.

Eleven days' overland journey is the shortest time in which the capital of the province can be reached from the nearest river port. The first and most important of these ten routes is the Imperial highway from Peking through Chihli, Shantung, Honan, Hupei, Hunan, Kueichow, and Yunnan, and as far as the borders of Burma. The distance from Peking to Yunnan Fu by this route is 5,895 *li*, or over 2,000 miles, and it takes ordinary travellers at least one hundred days to accomplish the journey. Four months is, however, the usual time. Frequent halts and rests are necessary for the welfare of man and beast, so it happens that every ten or fifteen days the coolies and pack animals are all changed at certain well-known and regularly established centres for that purpose. Carts engaged at Peking may, however, come as far as Hsiang-yang Fu on the Han River in about thirty days without changing, but it is rarely done. The Imperial post couriers bearing important dispatches to or from Peking and Yunnan sometimes do the whole journey, 2,000 miles, in thirty days, but they change ponies every ten or fifteen miles.

The advent of steamers in China has brought about considerable changes. Thus, travellers leaving Peking for the distant province of Yunnan may now take cart to Tientsin in three days, embark there on a steamer, and reach Shanghai in four or five days. Thence they go by river steamer to Hankow in four days. At Hankow a junk may be hired to go up the Yangtze River, through the Tungting Lake, and up the Yüan River to Chên-yuan-fu, Kueichow province, in forty days. Here the land journey commences,

as follows: Eight days to Kuei-yang Fu, capital of Kueichow province, thence eighteen days to Yünnan Fu, total eighty-eight days, or including rests 100 days. The whole journey may be accomplished in eighty 'days' actual travelling, but halts and rests are necessary, so 100 days is the usual time occupied in the actual performance of this feat. This is the best possible route for officials just now, in the way of accommodation afloat and ashore, nevertheless it is an arduous and comfortless task for everybody. Merchandise cannot be profitably forwarded to Yunnan by this route as the duties levied in Hunan and Kueichow are so heavy that the merchandise is made too costly for sale in Yunnan.

The Shui Fu or Chao Tung route is now the most important and least costly of all the trade routes to Yunnan from Central China. Travellers and merchandise may now come to Ichang by steamer, thence travel in junks on the Upper Yangtze, through the Gorges, over the rapids, into Ssü-ch'nan province; pass Chung-kh'ing and stop at the prefectural city of 叙州府 Hsü-chou Fu, also called Shui Fu, in Lat. $28^{\circ} 38' N.$, Long. $104^{\circ} 46' E.$, in about 40 days or six weeks. Here the land journey commences; pack animals and coolies are engaged; your baggage or merchandise is lashed on the pack-saddles and carried by the animals. You mount a sedan-chair and are borne by the coolies in the same manner as on the Imperial highway through Hu-nan and Kuei-chow already mentioned. You pass out of Ssü-ch'uan into Yunnan province at the famous Customs barrier called Lao-ya-Tan, thence by the prefectural cities of 昭通府 Chao-tung Fu, Lat. $27^{\circ} 20' N.$, Long. $103^{\circ} 50' E.$, and 東川府 Tung-ch'uan Fu, Lat. $26^{\circ} 21' N.$, Long. $106^{\circ} 26' E.$, to the provincial capital and prefectural city of Yünnan Fu, in twenty-four days; the whole journey from Ichang, by river and road, may be accomplished in about ten weeks, including stoppages. The bulk of Foreign goods now sold in Yunnan passes by this route, as the duties, though heavy, are still lighter than on all the other routes, and there is less danger of being robbed or squeezed by marauders. The alternate route to this from the Upper Yangtze is the third route, which is called the Yung-uing Hsüan Wei route. Instead of going up as

far as Shui Fu we turn up a small river called the 永甯河 Yung-ning Ho, near the county seat of the 納谿縣 Na-ch'i Hsien Magistracy, Lat. $28^{\circ} 48' N.$, Long. $105^{\circ} 23' E.$, in the district of Lū-ch'ou, Ssū-ch'uan province. Junks from Ichang cannot go farther than Na-ch'i Hsien, smaller boats are necessary, and the journey to Yung-ning Hsien takes about four days, according to the state of the river. 永甯縣 Yung-ning Hsien is the name of the solitary county in the department called 叙永直隸廳 Hsü-Yung Chih-li Ting, Lat. $28^{\circ} 08' N.$, Long. $105^{\circ} 18' E.$ Ssū-ch'uan province, on the frontiers of Kuei-Chow province. It is the centre of a considerable amount of trade between both provinces.

Here the land journey commences with pack animals and coolie carriers as on the other route, passing through the cities Pi-chieh Hsien and Wei-ning Chou, by a difficult and mountainous road crossing the 清河 Ch'ing Ho, a small river forming the boundary line between the provinces of Yunnan and Kuei-chow. The first city we reach in Yunnan province is the sub-prefectural seat of 宣威州 Hsüan-wei Chow, Lat. $26^{\circ} 25' N.$, Long. $104^{\circ} E.$, in the prefecture of Ch'ü-ching Fu, arriving at Yunnan Fu, the capital of Yunnan province, in twenty-one days. The road through Kuei-Chow being mountainous, and paved with rough limestone boulders which are as hard as flint and as smooth as glass, and as slippery as ice, is exceedingly tiresome and trying to man and beast. Officials and ordinary travellers prefer it however to the Shui-fu-Chao-tung route, but merchants with ordinary merchandise prefer the latter, as they thereby avoid the payment of dues in Kuei-Chow province. Traffic through Kuei-Chow is thus discouraged by the levying of dues on goods in transit.

The K'iang Hing Ssu Mao route was proposed by Captain Sprye many years ago as being suitable for the building of a railroad from Burma to Yunnan, and it is no doubt the likeliest to prove profitable as a railroad speculation. The British Indian Government may now encourage the building of railways through any part of Burma up to the Chinese frontier, and that line is said to be by far the easiest yet found. 思茅廳 Ssü Mao Ting lies in Lat. $23^{\circ} 30' N.$, Long. $101^{\circ} 40' E.$, in the prefecture of Pu Erh Fu,

Yunnan province, and distant from the provincial capital about twenty-two days' journey, over the same kind of rough and rugged roads common to all parts of the Yün-kwei Vice-royalty. Pack animals and coolie carriers are also indispensable on this route. England cannot, of course, build railroads in China, but she can do so in Burma, and the sooner it is done the better, in order to place her manufactures as near as possible to the distributing markets at reasonable prices. This has often been spoken of as the most promising route for the development of British trade with Yunnan, and it no doubt possesses certain advantages which must not be lost sight of.

Fine river steamers ascend the Irrawaddi River as far up as Bhamo, and it would not be a very difficult matter to build a railway from Bhamo, across the Katchyen Hills to Man-Yin on the Chinese frontier side of those hills, but the wild Katchyens are troublesome people. They must be tamed, and given, or found, a suitable means of livelihood, otherwise they will always prove a nuisance and terror, as they have been for ages, to all traders passing through their country. Man-Yin is distant from the nearest Chinese city, Têng Yneh T'ing, four days' journey, or about eighty miles on an easy road, through a well cultivated and fertile plain. 騰越廳 Têng Yneh T'ing is a sub-Prefecture of Yung Chang Fu, and the sub-Prefectural city lies in Lat. $24^{\circ} 58' N.$, Long. $98^{\circ} 45' E.$ The city of Têng Yneh is, however, still four days' journey distant from Yung Chang Fu, twelve days from Ta-li Fu, and twenty-five days from Yunnan Fu, the Provincial capital. This road, lying as it does across three large rivers and six ranges of high mountains, is far from proving an easy one to railway-makers across the province of Yunnan. The best thing England can do for her manufacturers is to transport the produce of their industry as near and cheaply as possible to the consuming markets, on the frontiers of China.

The next route is the Pai-sè-kuang-nan route. Travellers on this route leaving Canton in a junk may come up the West River to 梧州府 Wu-chou Fu, Kuangsi province, in about eight days, at all seasons of the year, thence passing 南寧府 Nan-ning Fu

reach 百色廳 *Pai Sê Ting*, Lat. 24° N., Long $106^{\circ} 20'$ E., in one month, or six weeks, according to the state of the river current, which is sometimes very swift. *Pai Sê Ting*, is the centre of a considerable amount of trade in Foreign and other goods from Canton with Kuei-chou and Yunnan, favourably situated as it is at the head of navigation for junks on the West River. There are two trade routes leading thence to Yünnan Fu. It is the first of these that I call the sixth route, or *Pai Sê Kwang-nan route*. Leaving *Pai Sê Ting* and travelling by 廣南府 *Kuang-nan Fu*, Lat. $24^{\circ} 10'$ N., Long. $105^{\circ} 06'$ E., Yünnan Fu may be reached in about twenty-five days, as follows: Ascending first by boat from the city of *Pai-sê*, we may reach 剥隘 *Po-ai*, which is a market-town on the frontier of Yunnan, in three or four days. At *Po-ai*, pack animals and coolie carriers are engaged, journeying thence across mountains and valleys the prefectural city of 廣南府 *Kuang-nan Fu*, Lat. $24^{\circ} 10'$ N., Long. $105^{\circ} 06'$ E., may be reached in seven days, and Yünnan Fu may be reached in fourteen days more, thus making the whole journey by land and water about twenty-five days from *Pai-sê*. Boats from *Po-ai* to *Pai-sê* going with the stream do that part of the journey easily in one day, thus three days are saved on the return journey. The land route accommodation is exceedingly bad, cattle and people all herd in the same room or shed. Pack animals and coolies are not always to be found at *Po-ai*, especially in the summer months, as the town is very unhealthy.

The seventh route is the *Pai-sê Hsing-yi route*. This other route from *Pai-sê Ting* to Yünnan Fu passes through the prefectural city of 興義府 *Hsing-yi-fu*, Lat. $25^{\circ} 15'$ N., Long. 106° E., in Kueichon province. It is the route usually followed by officials going from Kwangtung and Kwangsi to Yunnan, and has the advantage of being somewhat easier than the other, having inns for the accommodation of travellers, and provisions for their entertainment. It is possible to get along better than on the other route, but with all this it is still very bad, and the journey cannot be accomplished in much less than twenty-five days, twenty-three days being considered a good journey.

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It will not pay however to send merchandise by this route, as duty must be paid on such whilst passing through Knei-chon. The eighth route, the Pak-hoi Kai-hua route, is a long and tedious route, entirely overland along the frontiers of Tongking, and around by the prefectural city of 開化府 K'ai-hua Fu, Lat. $23^{\circ} 10' N.$, Long. $104^{\circ} 50' E.$, Yunnan province, and on to the provincial capital. It is a journey of fifty-two days. It is the route followed by large bands of armed traders from Pak-hoi, who carry foreign goods to Yunnan and return with opium from that province. The ninth route, the Lao-kai Man-hao Route, is now the shortest of all land routes to the capital of Yunnan, from the surrounding countries. Steamers ascend from Hanoi, in Tongking, to Lao-kai, and junks get up to the port of Man-hao, at the head of the navigable part of the now famous Red River. At Man-hao, pack animals and coolie carriers are obtainable, and the journey thence through 蒙子縣 Meng-tzu Hsien, Lat. $23^{\circ} 34' N.$, Long. $103^{\circ} 36' E.$, Yunnan province, to Yunnan Fu, is usually accomplished in eleven days. This is a very important matter to people who are interested in trade generally, but more especially to Chinese merchants in Yunnan. Yet, strange to say, the Chinese Government abandoned this important trade route to the tender mercies of the Black Flag filibusters for years without attempting to improve it or even to protect its own enterprising merchants, who, from time to time of late years, have attempted to trade thereon with the neighboring states in that region. All other routes from the highest point of navigation to Yunnan Fu are longer by half, and no better off in point of convenience and accommodation for travellers and merchandise.

China has lost a favourable opportunity to benefit her people in Yunnan, and it is now too late to repair the fault by which she lost it. The tenth route, the Assam Wei-Hsi route, is one by which Yunnan may be reached from the British possessions in Assam, and which might be opened up to trade, for the mutual benefit of all parties concerned. The journey to Yunnan Fu, passing through the cities of 維西廳 Wei-hsi-t'ing, Lat. $27^{\circ} 30' N.$, Long. $100^{\circ} 05' E.$; and 麗江府 Li-kiang Fu, Lat. $26^{\circ} 52' N.$, Long. $100^{\circ} 27' E.$, is also a toilsome and trying one, and occupies three or four

weeks at best, with the usual pack animals; no coolies worth having are available on this route. Each stage or day's journey on all the routes to Yunnan is supposed to be about twenty-five miles in actual length of route travelled, but in reality the stages vary from twenty or thirty miles, according to the difficulties of the road, and the accommodation available, so that the average is probably something *less* than twenty-five miles on a long journey.

The cost for transport or conveyance of goods and travellers is about the same on all the routes; that is, pack animals are usually paid three mace of silver for each stage, and coolies two mace for the same stages. Each animal can carry about 160 lbs. English, divided into two parcels of equal weight. The coolies, carry half that weight, also made up into two parcels. Heavier parcels may however be carried by two or more coolies in litters like sedan-chairs, but the weight carried by each coolie, in such cases is about twenty per cent. less than in the former case. The cost of carriage is thus very high indeed, so that it behoves all governments and people interested in the expansion of trade with Yunnan to do all they possibly can to lay their merchandise as near as possible to the various centres of consumption at the lowest possible prices consistent with profitable undertakings. The Chinese Government will not do anything for the improvement of the wretched condition of the people of Yunnan. Here then is an opportunity for simple Christianity and intelligent, humane missionaries. That distant province has in fact been a constant drain on the resources of the Empire for ages past, and is likely to continue so in future. In 1865 when nearly the whole of Yunnan was in the hands of the Mussulman rebels, China was on the point of relinquishing her hold of the province, and it would have been much better for her if she had done so. The only hope of relief from her present wretched condition that Yunnan may expect, is the probability that a man of talent in the art of governing will, some day, appear in that region, to carve himself a new and promising kingdom from that long ill-ruled fragment of this ancient and vast Empire.*

* General Meany desires to express his indebtedness to Mr. G. M. H. Playfair's excellent work on the *Cities and Towns of China*, from which the latitudes and longitudes given in the paper are taken as the most reliable authority extant on the subject.

General Mesny was warmly applauded when he finished speaking, and when order was again called, the CHAIRMAN, in thanking the reader of the paper, said it was most interesting to have their attention called to the little-known province General Mesny had described in the pleasing form of an itinerary.

The CHAIRMAN then said he had been reminded while General Mesny was speaking of Du Halde's great book, and it struck him that beyond all doubt itineraries and papers containing full and reliable information like that they had just heard must be considered most valuable, and likely to add considerably to the good results of their Society. There are many things which render the province of Yunnan most interesting to Foreigners at the present time. They had all been interested in the Japanese miners who went there some time ago, and who are still working at the mines in order to give the Chinese an opportunity of profiting by their experience, and to show them how the resources of Yunnan may be exploited in a proper manner. A lot of information about Yunnan is to be derived from the interesting account of that province given by Mr. Happer in his Trade Report for last year published by the Customs. They were also particularly well off in having such a valuable book as Roher's on Yunnan, but if anyone wants to know the results to be expected from the working of the gold, copper and silver mines of of the province, or to get a brief and concise account of them, Mr. Happer's report is the best work to be consulted.

Mr. DONOVAN, in proposing a cordial vote of thanks to General Mesny, said the description the writer of the valuable paper they had just heard read had given of those trade routes was remarkably interesting to them at this time. He had been particularly struck with the account given of the terrible way the women of the province are treated, and he should like to ask General Mesny what is their condition in those districts of Yunnan which enjoy the blessings of home rule, and are they better off there than in the districts under the government of the Chinese.

General MESNY replied that the natives living under home rule are no better off than the natives of the other districts, because the Chinese Government compels the natives of the province generally

to contribute a considerable amount of grain and other tribute to the Imperial revenue.

Rev. W. Muirhead seconded the vote of thanks proposed to General Mesny by Mr. Donovan, and said the paper they had heard was a very valuable contribution to our knowledge of Yunnan, and he hoped the greatest publicity would be given to it. He had often marvelled at the wonderful amount of general information to be derived from Central Asian sources, and felt how much we are indebted to those who have undergone hardship and privation in order to visit those remote regions and describe them to us, thereby adding so inestimably to our knowledge of things in general. Their friend had done well in putting together such a valuable paper in connection with his itineraries, and it would be very much to be regretted if his knowledge were not availed of. They would all be highly pleased to hear General Mesny had been appointed to some position in Yunnan where his unique knowledge could be made practically useful. They were aware he had been there for a number of years, and it would be interesting if he gave them a narrative of his experiences as regards himself, but at the same time, as a Society, they were indebted to a very great degree to him for the important information given them that night. The important view which presented itself to Mr. Muirhead from hearing General Mesny's paper was in connection with ethnological observation. Was it not wonderful that the tribes of Yunnan have existed in that great country in such a low condition for thousands of years? We have been accustomed to speak of the Chinese as a very long-lived people; they have been here for millenniums, but when we look at their annals we find there were people here earlier than they, and it was about these they had heard from General Mesny there that night. We are aware the Babylonians, Persians, and other contemporary nations have long disappeared, and to what extent we know them we know them only from inscriptions on stone and from the scattered remains of the great edifices they constructed; but not only the Chinese, but people of China anterior to the Chinese, are living here still, and it is of the utmost importance to enquire in what way they might be improved, civilised and, above

all, Christianised; and Mr. Muirhead trusted that there will be an impetus imparted to some at least of the missionaries to make them seek those poor people of whom they had just heard with such deep interest.

Mr. TAYLOR asked could General Mesny give any further information about the winds he had referred to as agitating the lakes of Yunnan by day and dying away at night.

General MESNY replied he had paid some attention to the matter for a month by going down to the lake every day when there was a strong breeze blowing, and the water was very much agitated, but in the evening the wind always subsided and the water became smooth. In the West Indies there is nearly always a sea breeze by day and a land breeze by night.

Mr. BAXTON said, when they came to the meeting they had all expected to hear a great deal of valuable information from General Mesny about Yunnan, and they had heard it, but still there were one or two points upon which he thought a good deal of information might still have been given. The great interest that has attached to Yunnan of late years, so far as he could see, was due to its great trade possibilities. There has been a sort of feeling prevailing very generally that Yunnan is a species of El Dorado where fortunes could easily and rapidly be made by any adventurer enterprising enough to tap her immense mineral wealth,—a feeling probably due to the exploits of the 18 or 19 Japanese gentlemen referred to by Dr. Edkins that evening. But they were all aware that mining is a precarious mode of making a fortune, and legitimate trade is generally considered a much better way of acquiring wealth. He was disappointed to find from what General Mesny had said about the trade of Yunnan that there are no imports. General Mesny had laid down and described very fully ten distinct trade routes, and his description of them was not very promising for the growth of import trade. Suppose we go about importing a vast amount of merchandise, how are we to do it? We will have enormous distances to travel before goods can be laid down in any considerable centres in Yunnan, and there are absolutely no facilities there for cheap

and rapid transit. Everyone who has been in China knows the value of her waterways, but there are no waterways in Yunnan, and all the transit has to be done by coolies, and coolies at 250 cash a day for 14 days would be very expensive work. It is plain the import trade in Yunnan is not going to be a very great success. There are eleven millions of inhabitants in Yunnan, of whom two-thirds are cultivated savages. When he heard of trade routes that were going to be opened up to Yunnan and Burma he always asked what is going to be the result of them. There is a certain amount of import trade now going on in Yunnan; goods can be carried from Hankow to Yunnan for considerably less money than in any other part of China, but when Yunnan comes to be generally supplied with goods, the question of where she is going to be supplied from is one possessing special interest for the natives of Shanghai. From what General Mesny had said, he seemed to think that Burma will be the ultimate source of import into Yunnan, but would that do people here any good? Referring to the condition of Yunnan generally, Mr. Bredon said he was very much inclined to think that the remark made by Lord Salisbury about the Sister Kingdom, that it wants a few years of strong government, applies in an eminent degree to the province General Mesny had just described. He just dropped these few remarks hoping General Mesny would tell them something about the prospects of Yunnan, and how far the popular opinion that it is a kind of El Dorado or Goleonda, and the hopes of the great future in store for it, are likely to be realised.

The CHAIRMAN said Mr. Happer spoke of mnsk and tin as articles of export from Yunnan, and he noticed the export of these articles is increasing rapidly. If the imports cannot be great the exports may be very valuable, and of course the expense of carrying articles is decreased in proportion to the value of the goods. There is every reason to hope that in the going forward of Christian missions immense good will be done for the development of Yunnan, because in Burma the success of the missions had been attended with a remarkable improvement in the condition of that country.

The vote of thanks proposed to General Mesny by Mr. Donovan and seconded by Rev. Mr. Muirhead was then put to the meeting and carried with acclamation.

General MESNY, in answer to Mr. Bredon's enquiries about the prospects of trade in Yunnan, said the only routes that were likely to be improved in a satisfactory manner were the route by the Red River to Tongking and one or two others that were likely to be improved by the opening of Chungking, and something also might be done by way of Burma. He had not recommended the building of railroads in Yunnan, because the country offered too many natural obstacles, but still something can doubtless be done to improve matters relating to trade there very considerably. He was very grateful to the meeting for the attentive hearing they had given him and for the vote of thanks they had passed to him.

The proceedings then terminated.

LIST OF OFFICERS OF THE SOCIETY

1891-92.



President : N. J. HANNEN.

Vice-Presidents : { P. G. VON MÖLLENDORFF.
Rev. JOSEPH EDKINS, D.D.

Hon. Secretary : Z. VOLPICELLI.

Hon. Treasurer : THOMAS BROWN.

Hon. Librarian : J. Ritter VON HAAS.

Hon. Curator of Museum : D. C. JANSEN.

Councillors : { R. E. BREDON.
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T. W. KINGSMILL.
G. M. H. PLAYFAIR.

LIST OF MEMBERS.

(Corrected to December 20th, 1892.)

Members are particularly requested to notify the Hon. Secretary of any change of address or other necessary correction to be made in this List.

† Indicates a Member who has contributed to the Society's Journal.

§ „ Life Member of the Society.

Name.	Address.	Year of Election
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Honorary Protector.

His Majesty LEOPOLD II, King of the Belgians.

Honorary Members.

Alcock, Sir Rutherford, K.C.B., D.C.L.	Athenaeum Club, Pall Mall, London, S.W.	1864
Hart, Sir Robert, G.C.M.G., LL.D.	Inspectorate - General of Customs, Peking.	1864
Hughes, P. J., M.A.	C/o Hongkong & Shanghai Banking Corporation, London.	1868
Legge, Prof. James, D.D. ...	University of Oxford	1864
Richthofen, Freiherr F. von ...	Berlin	1880
Wade, Sir Thomas F., G.C.B., M.A.	5, Salisbury Villas, Cambridge ...	1864
Zottoli, Père Angelo	Jesuit Mission, Sincawei, Shanghai ...	1886

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Corresponding Members.

†Bastian, Dr. Adolph ...	Ethnological Museum, Berlin ...	1865
†Bretschneider, E. M.D. ...	Moika, 64, St. Petersburg ...	1880
Cordier, Henri ...	3, Place Vintimille, Paris ...	1886
Edkins, Rev. Joseph, D.D. ...	Custom House, Shanghai ...	1864
†Fritsche, H., Ph.D. ...	C/o Russian Legation, Peking ...	1877
†Fryer, John ...	Kiangnan Arsenal, Shanghai ...	1868
†Gabelentz, Prof. Georg von der	Berlin ...	1884
†Giles, Herbert A. ...	British Consulate, Ningpo ...	1880
Happer, Rev. A. P., D.D. ...	Canton ...	1864
Hepburn, J. C., LL.D. ...	245, Bluff, Yokohama, Japan ...	1864
†John, Rev. Griffith, D.D. ...	Hankow ...	1864
Keischke, Ito, M.D. ...	Tokio, Japan ...	1875
Kreitner, G. Ritter von ...	Yokohama, Japan ...	1880
†Lindau, Rndolph, Ph.D. ...	C/o Auswärtiges Amt, Berlin ...	1864
Lockhart, Wm., F.R.C.S. ...	67, Granville Park, Blackheath, London, S.E.	1864
†Macgowan, D. J., M.D. ...	Custom House, Shanghai ...	1864
†Martin, Rev. W. A. P., D.D. ...	C/o T'ung-wên Kuan, Peking ...	1864
†McCartee, D. B., M.D. ...	C/o Dr. Ellinwood, 23, Centre Street, New York, U.S.A.	1865
†Moule, Right Rev. Bishop, D.D.	Hangchow ...	1864
†Muirhead, Rev. W. ...	London Mission, Shanghai ...	1864
Rondot, Natalis ...	C/o Chambre de Commerce, Lyons .	1864
Schereschewsky, Right Rev. Bishop, D.D.	23, Bible House, New York, U.S.A. .	1864
Széchenyi, Count Béla ...	Zinkendorf, Hungary ...	1880

Name.	Address.	Year of Election
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Ordinary Members.

Aalst, Jules A. van	Inspectorate - General of Customs, Peking	1888
§Abbott, R. J.	C/o Custom House, Shanghai ...	1888
Acheson, James	Custom House, Shanghai ...	1880
Adams, Rev. J. S.	Am. Bap. Miss. Union, Kin-hwa-fu, via Ningpo	1889
†Allen, H. J.	10, Norton, Tenby, Pembrokeshire ...	1872
Andersen, N. P.	Custom House, Shanghai ...	1883
†Anderson, G. C.	C/o Messrs. Jardine, Matheson & Co., Hongkong	1880
Anding, W.	C/o Mr. W. Rosenthal, Untertrasse, 85, Eisenach, Germany	1887
Andrew, W. M.	Custom House, Shanghai ...	1891
Arnoux, Comte G. d'	C/o Custom House, Shanghai ...	1883
§Ball, J. Dyer	Supreme Court, Hongkong ...	1883
Baux, G.	20, Place Denfert-Rochereau, Paris...	1885
Beauvais, M. J.	French Consulate, Lungchow ...	1892
†Becher, H. M.	C/o Messrs. Kelly and Walsh, Limited, Singapore	1885
Beck, H.	23, Sachuen Road, Shanghai ...	1885
Beebe, R. C., M.D.	Nanking	1889
Bethge, C.	Casa Valentino Molo, Bellinzona, Switzerland	1887
Billinghurst, J. F.	C/o D. Sassoon Sons & Co., Shanghai	1891
Bock, Carl	C/o Consulate-General for Sweden and Norway, Shanghai	1888
Bottin, A.	Sans Souci Terrace, Shanghai ...	1889
Bourne, F. S. A.	British Consulate, Amoy ...	1885
Bradlee, Rev. Caleb D., D.D. ...	57, West Brookline Street, Boston, Mass., U.S.A.	1890
Brand, W.	Messrs. Brand Bros. & Co., Shanghai	1887
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Bredon, Robt. E., M.A.	Custom House, Shanghai ...	1885
Bright, Wm.	Inspectorate General of Customs, Shanghai	1885
Bristow, H. B.	British Consulate, Chefoo ...	1877
Browett, Harold	13, Yuen-ming-yuen Road ...	1891
§Brown, J. McLeavy, LL.D. ...	Custom House, Kowloon ...	1865
Brown, Thos.	Messrs. Kelly and Walsh, Limited, Shanghai	1885
Brown, W. P.	Inspectorate - General of Customs, Shanghai	1890
Buchanan, J.	Messrs. J. P. Bisset & Co., Shanghai	1887
†Bushell, S. W., M.D.	British Legation, Peking ...	1868
Butler, Count A. von	Tamsui, Formosa ...	1886
Butler, P. E. O'B.	C/o British Consulate-General, S'hai.	1886

Name,	Address.	Year of Election
§Calder, J.	Port Arthur, North China	1890
Camers, L.	C/o Messrs. Lintilhac & Co., Shanghai	1891
Campbell, C. W.	British Consulate-General, Seoul, Corea	1890
†Carles, W. R.	British Consulate, Chinkiang	1887
Carrall, James W.	Custom House, Chefoo	1885
Chalmers, James L.	C/o Custom House, Canton	1885
§Chavannes, Ed.	French Legation, Peking	1889
Cocker, T.	Custom House, Shanghai	1885
Collyer, Chas. T.	British and Foreign Bible Society, Shanghai	1891
Cordes, Aug. C.	Messrs. A. Cordes & Co., Tientsin	1877
Coughtrie, J. B.	43, Queen's Road, Hongkong	1879
Creagh, E. Fitzgerald	Custom House, Hankow	1886
Danforth, A. W.	Cotton Mill Co., Shanghai	1887
De Groot, Dr. J. J. M.	407, Marnixstraat, Amsterdam	1887
Deighton-Braysher, C.	Custom House, Kiukiang	1870
Dennys, H. L.	Secretary's Office, City Hall, Hong- kong	1877
Dmitrevsky, P. A.	Russian Legation, Seoul	1882
Dodd, John	C/o Messrs. Dodd & Co., Tamsui	1872
Donovan, J. P.	Custom House, Shanghai	1891
Dowdall, Chas.	21, Foochow Road, Shanghai	1881
§†Drew, E. B.	Inspectorate-General of Customs, Peking	1882
Dülberg, F. W. E.	Customs House, Keelung	1890
Duncan, Chesney	C/o <i>Hongkong Telegraph</i> Office, Hongkong	1889
Eiwin, Rev. Arthur	Church Missionary Society, Hangchow	1890
†Faber, Rev. Ernst, DR. THEOL.	18, Nanking Road	1886
Farragó, Edm.	Custom House, Foochow	1877
Francis, R.	10, Peking Road, Shanghai	1888
Franke, Otto, PH.D.	German Consulate-General, Shanghai	1890
Fraser, M. F. A.	C/o British Consulate-General, Sh'hai	1888
Frater, Alex.	C/o H.M. Consulate-General, Sh'hai ..	1877
†Fries, S. Ritter von	C/o Custom House, Shanghai	1885
Fulford, H. E.	C/o British Consulate-General, Shanghai	1885
Gabriel, Hermann, DR. JUR. ...	C/o German Consulate, Batavia	1884
†Gardner, C. T.	British Consulate, Hankow	1877
Gatti, Carlo	C/o Messrs. Jardine, Matheson & Co., Shanghai	1886
Gericke, E.	Deutsch-Asiatische Bank, Shanghai	1891
Goebel, Max.	Belgian Consulate-General, Shanghai	1890
Grant, P. V.	Messrs. Boyd & Co., Shanghai	1871
Gratton, F. M., A.E.I.B.A.	The Bund, Shanghai	1889
Günzburg, Baron G. de	Bubbling Well Road	1892

Name.	Address.	Year of Election
†Haas, J. Ritter von	Austro-Hungarian Consulate, S'hai .	1869
§Hall, J. C., M.A.	British Consulate, Nagasaki	1888
†Hallifax, T. E.	Jingo Chiu Gakko, Koriyama, Fuku-shima Ken, Japan	1889
Hanbury, T.	C/o Messrs. Iveson & Co., Shanghai .	1868
Hannen, N. J.	H.B.M.'s Supreme Court, Shanghai ...	1891
†Happer, Andrew P., Jr.	C/o Rev. A. P. Happer, D.D., Glenshan, Allegheny County, Penn., U.S.A.	1885
Harding, J. R.	Custom House, Amoy	1885
§Hart, J. H.	C/o Custom House, Shanghai	1885
Hart, Rev. V. C., M.A.	2, Whangpoo Road	1887
Henderson, D. M., M.L.C.E.	Custom House, Shanghai	1885
Henderson, E., M.D.	Szechuen Road, Shanghai	1876
†Henry, A., M.A.	Custom House, Takow	1881
Hey, E.	8, Foochow Road, Shanghai	1886
Hippisley, A. E.	Custom House, Lappa	1876
†Hirth, F., Ph.D.	Custom House, Chinkiang	1877
†Hobson, H. E.	Custom House, Chungking	1868
Hodges, Rev. H. C., M.A.	The Deaver, Shanghai	1887
Hoetink, B.	Swatow	1882
†Hosie, Alex., M.A.	British Consulate, Wenchow	1877
Hunter, Rev. S. A., M.A., M.D., LL.D.	Morgan Town, West Virginia, Va., U.S.A.	1890
†Imbault-Huart, C.	French Consulate, Canton	1880
Jack, J. B.	Custom House, Hankow	1890
†Jamieson, G.	H.B.M.'s Supreme Court, Shanghai .	1868
Jamieson, J. W.	British Consulate, Tientsin	1888
†Jamieson, R. A., M.A.	40, Szechuen Road, Shanghai	1864
Janson, D. C.	Astor House, Shanghai	1877
Jeffrey, Sydney	Hongkong	1892
Keumure, Alexander	American Bible Society, Shanghai ...	1887
Keswick, J. J.	C/o Messrs. Jardine, Matheson & Co., Shanghai	1885
King, Paul H.	C/o Custom House, Shanghai	1886
†Kingsmill, Thos. W.	Szechuen Road, Shanghai	1864
Kleinwachter, F.	Lutherstr., Berlin	1868
Klene, R.	United States Consulate, Ningpo ...	1890
†Kopech, H.	Inspectorate General of Customs, Shanghai	1877
Lemke, F.	Messrs. Meyer, Lemke & Co., S'hai	1890
Lenz, Ph., Ph.D.	German Consulate, Chefoo	1885
Lévisier, E.	Custom House, Shanghai	1885
Lieder, Ph.	Messrs. Mandl & Co., Shanghai ...	1886
†Little, Archibald J.	C/o R. W. Little, Esq., North China Herald Office	1868
Little, L. S., B.A.	1, Hongkong Road, Shanghai	1879
Little, Robt. W.	North China Herald Office	1886
Lookhart, J. H. Stewart	Hongkong	1885

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Low, E. G.	C/o Messrs. Fearon, Low & Co. ...	1892
Lyall, Leonard	C/o Custom House, Shanghai ...	1892
Macgregor, John	Messrs. Jardine, Matheson & Co., Shanghai	1888
Macintyre, Rev. John	Newchwang	1880
Mackey, Jas.	38, Yama, Kobe, Japan	1886
Maclellan, J. W.	13, Pilrig Street, Edinburgh ...	1888
Major, E.	14, Hankow Road, Shanghai ...	1887
Martinoff, G.	Tientsin	1889
Marzal, Y. de Faria J. de ...	Spanish Legation, Peking	1890
McDougall, H., M.B.	Amoy	1885
McIntosh, G.	Amer. Presb. Mission Press, S'hai ...	1889
Mencarini, J.	Custom House, Foochow	1887
Merz, C., PH.D.	German Consulate, Takow, Formosa.	1883
Mesny, Gen. W.	Shanghai	1890
Milles, W. J., F.R.C.S.	8, Shantung Road, Shanghai ...	1885
Milles, Capt. D. A., R.E. ...	Bude, Cornwall	1888
† Möllendorff, O. F. von, PH.D.	C/o Mr. P. G. von Möllendorff, Inspectorate-General of Customs, Shanghai	1877
† Möllendorff, P. G. von ...	Inspectorate-General of Customs, Shanghai	1877
† Morrison, G. J., M.I.C.E. ...	Messrs. Morrison & Gratton, Shanghai.	1880
Morse, H. R.	Custom House, Tamsui	1888
Mürsel, F. H.	Jenchuan	1889
Mortimore, R. H.	British Legation, Peking	1885
Monle, Ven. Archdeacon A. E., B.D.	C/o Church Missionary Society, Shanghai	1888
Müller-Beeck, Geo.	C/o German Consulate - General, Yokohama, Japan	1886
Murray, D. S.	British and Foreign Bible Society, Shanghai	1887
Navarra, B. B. A.	C/o North China Herald Office, Shanghai	1890
† Nocentini, L.	Via del Proconsolo, 21; Firenze, Italy	1884
Novion, A.	Custom House, Wenchow	1885
Nully, R. de	Custom House, Chinkiang	1884
O'Brien-Butler, P. E.	C/o H. B. M. Consulate - General, Shanghai	1886
Ohlmer, E.	Inspectorate-General of Customs, Pe- king	1885
Ottomeier, P. A. W.	Shanghai	1886
Oxenham, E. L.	42, Addison Road, London, W. ...	1887
Palamountain, B.	Inspectorate-General of Customs, Shanghai	1886
† Parker, E. H.	C/o British Residency, Bhirma ...	1877

Name.	Address.	Year of Election
Parkinson, F. B., A.R.S.M. ...	Hankow	1890
Patersson, J. W. ...	Custom House, Hankow	1883
Perkins, H. M., D.D.S. ...	1. Kiukiang Road, Shanghai	1885
Peterson, Denton E., D.D.S. ...	9, Counaught House, Queen's Road Hongkong	1887
†Phillips, Geo.	C/o British Consulate General, S'hai.	1888
Pichon, L., M.D.	Faubourg St. Honoré, 166, Paris	1876
Piry, Théophile	C/o Customs, Shanghai	1885
Plancy, V. Collin de	French Legation, Tokio	1877
Playfair, G. M. H.	British Consulate-General, Shanghai	1885
Prentice, John	Messrs. Boyd & Co., Shanghai	1885
Preece, G. U.	Messrs. Tait & Co., Amoy	1886
Pryn, E. T.	Customs House, Chefoo	1885
Rathsam, Th.	German Consulate, Canton	1887
Rayner, Charles	Messrs. Carlowitz & Co., Tientsin	1886
Rees, Claude A.	Messrs. Gilmour & Co, Shanghai	1889
Reinsdorf, F.	German Consulate, Seoul, Corea	1883
Rémusat, J. L.	Custom House, Tamsui	1885
Rennie, Sir Richard T.	Reform Club, Pall Mall, London	1885
Rinkei, Ferd.	C/o Deutsch-Asiatische Bank, S'hai.	1890
Robinson, Prof. Henry H., B.A. ...	Wuchang	1890
Rocher, Emile	French Consulate, Seon, Corea	1877
§Rocher, Louis	Custom House, Canton	1884
Rockhill, W. W.	No. 1620, 19th St., Washington, D.C.	1885
Rothorn, A. Edier von	Custom House, Chungking	1883
Ruhrat, Ernst	Custom House, Chinkiang	1886
Russell, Sir Jas., C.M.G.	Hongkong	1870
Sampson, Theo.	12, Madeira Road, Streatham, London, S.W.	1868
Samson, J.	C/o Messrs. Reid, Evans & Co., Shanghai	1877
Schjölth, Fr.	C/o Daniel Steen, Christiania, Norway	1885
Schnacker, B.	Messrs. Carlowitz & Co., Shanghai	1887
Schmidt, K.	Messrs. Carlowitz & Co. Shanghai	1888
Seckendorff, Baron Edm. von ...	German Consulate, Tientsin	1880
Sheveleff, M. G.	Wladivostock	1891
Snethlage, H.	Shanghai	1885
Southey, T. S.	Custom House, Amoy	1880
Spinney, W. F.	C/o Custom House, Shanghai	1885
Startseff, A. D.	Messrs. Tokmakoff, Molotkoff & Co., Tientsin	1889
Streich, K. L.	German Consulate, Swatow	1880
Stripling, A. B.	C/o British Consulate, Jenchuan, Corea	1877
Styan, F. W.	C/o The P. & O. S. N. Co., Shanghai.	1884
Sutherland, H.	C/o Messrs. Fairhurst, Sutherland & Co., Foochow	1876

Name.	Address.	Year of Election
Syburg, F. von	German Consulate, Bombay	1886
Tanner, Paul von	Custom House, Shanghai	1881
†Taylor, C. H. B.	Custom House, Tientsin	1885
Taylor, F. E.	Custom House, Kowloon	1885
Taylor, Geo.	Custom House, Shanghai	...
Thwing, Prof. E. P., M.D.	156, St. Mark's Avenue, Brooklyn, New York, U.S.A.	1890
Timm, J.	Great Northern Telegraph Co., S'hai	1891
Ting I-haien	Inspectorate-General of Customs, Shanghai	1890
Underwood, G. R., M.B.	Kinkiang	1888
Valdez, J. M. T.	Portuguese Consulate-General S'hai.	1888
Vissière, A.	French Consulate-General Shanghai.	1880
Voelkel, S.	Pharmacie de l'Union, Shanghai	1885
†Volpicelli, Z. H.	Custom House, Shanghai	1886
Vosy-Bourbon, H.	C/o Messrs. L. Grenard & Co., S'hai.	1892
§Vouillemont, E. G.	Comptoir National d'Escompte de Paris, Shanghai	1888
Wade, H. T.	Shanghai Club	1886
Washbrook, W. A.	Custom House, Chinkiang	1881
Watters, T., M.A.	British Consulate, Canton	1865
Wenyon Rev. Charles	Fatchan, Canton	1892
Wilcox, R. C.	Daily Press Office, Hongkong	1877
†Williams, Rev. E. T.	192, E. Long St., Columbus, Ohio, U.S.A.	1889
Wood, A. G.	Messrs. Gibb, Livingston & Co., Hongkong	1879
Zedelius, C., M.D.	18, Kiangse Road, Shanghai	1885
Zooyef, Dr.	C/o Russian Consulate, Shanghai	1890

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